HP Series 5000 High Speed Page Printers

Maintenance Manual

Volume 1

Models F100, F100XP, F135, and F135XP

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PACKARD

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Printing History

New editions are complete revisions of the manual. Update packages, which are issued between editions, contain additional and replacement pages to be merged into the manual by the customer. The dates on the title page change only when a new edition or a new update is published. No information is incorporated into a reprinting unless it appears as a prior update; the edition does not change when an update is incorporated.

The software code printed alongside the date indicates the version level of the software product at the time the manual or update was issued. Many product updates and fixes do not require manual changes and, conversely, manual corrections may be done without accompanying product changes. Therefore, do not expect a one-to-one correspondence between product updates and manual updates.

Edition 1 . . . . December 1992
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[1] Edition 2 obsoletes all previous editions.

List of Effective Pages

The List of Effective Pages gives the date of the current edition and of any pages changed in updates to that edition. Within the manual, any page changed since the last edition is indicated by printing the date the changes were made on the bottom of the page. No information is incorporated into a reprinting unless it appears as a prior update.

All pages: Edition 1 . . . . December 1992
All pages: Edition 2[1] . . . . August 1994

[1] Edition 2 obsoletes all previous editions.

Safety and Regulatory Information

For your protection, this product has been tested for conformance to various national and international regulations and standards. The scope of this regulatory testing includes electrical and mechanical safety, electromagnetic emissions, immunity, acoustics and hazardous materials.

When required, approvals are obtained from third party test agencies. Approval marks appear on the product label. In addition, various regulatory bodies require some information under the headings noted below.

FCC Statement (USA Only)

The United States Federal Communications Commission (in 47 CFR 15.838) has specified that the following notice be brought to the attention of users of this product.

WARNING: This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits of Class A computing devices pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a commercial environment.

Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

DOC Statement (Canada Only)

This equipment does not exceed the Class A limits for radio noise emissions as set out in the Radio Interference Regulations of the Canadian Department of Communications.

Germany EMI (Germany Only)

This is to certify that this product meets the Radio Frequency Interference Requirements of Directive 1046/84. The German Bundespost has been notified that this equipment has been put into circulation and has been granted the right to check the product type for compliance with these requirements.

FUNKENTSTÖRUNG DEUTSCHLAND (German EMI Compliance)
HERSTELLERBESCHEINIGUNG

Hiermit wird bescheinigt, daß dieses Gerät in Übereinstimmung mit den Bestimmungen von der Postverfügung 1046/84, funkentstört ist.

Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie, auf Einhaltung der Bestimmungen, eingeräumt.

Japan VCCI (Japan Only)

この装置は，第一種情報装置（商工業地域において使用されるべき情報装置）で商工業地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）基準に適合しております。

従って，住宅地域またはその隣接した地域で使用すると，ラジオ，テレビジョン受信機等に受信障害を与えることがあります。

取扱説明書に従って正しい取り扱いをして下さい。

Acoustics (Germany)

Acoustic Noise (A-weighted Sound Pressure Level LpA) measured at bystander's position, normal operation, to ISO7779:

LpA < 70 dB(A) printing
< 55 dB(A) idling

Laermangabe (Schalldruckpegel LpA) gemessen fiktiver am Arbeitsplatz bei normalem Betrieb nach DIN 45635, Teil 19:

LpA < 70 dB(A) druckend
< 55 dB(A) leerlauf

Data Communications (United Kingdom only)

Pursuant to Section 22 of Telecommunications Act of 1984, this product is approved for indirect connection to Public Telecommunications systems within the United Kingdom under the General Approval number NS/G/1234/J/100003.

Data Communications (Europe only)

The remote support interface conforms to CCITT Recommendations V.24 and V.28.
For connection to the public telephone network, use only a modem complying with local regulations.

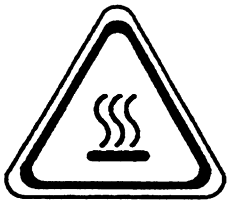
Material Safety Data Sheets

Hewlett-Packard has Material Safety Data Sheets (MSDS) available for all chemicals associated with the printing process implemented by all HP products. Should your site require a Material Safety Data Sheet for an HP-supplied chemical in use at your site, please contact HP's Customer Information Center at 1-800-752-0900 (in the US) or your local HP service office and provide the following information:

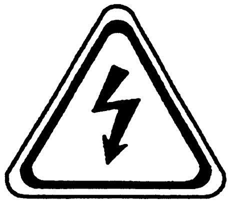
- HP part or product number
- Chemical substance description
- Your name
- Company name
- Company address
- Telephone number
- FAX number, if the request if for a FAX copy

Product Warning, Caution, and Notice Symbols

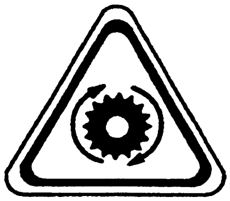
The following symbols are displayed on the product for your protection and to avoid damage to the product. They are encountered during routine maintenance. Please familiarize yourself with the meaning of each of these symbols.



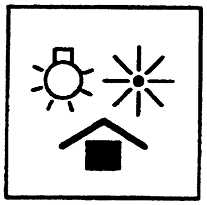
This symbol warns of hot surfaces. To prevent burns, use heat-proof protective gloves when working in areas where this symbol is displayed.



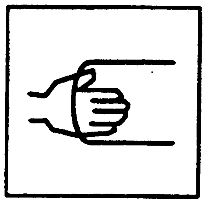
This symbol warns that the risk of electric shock exists behind the labeled cover. To reduce the risk of electric shock, these covers should be removed by qualified service personnel only.



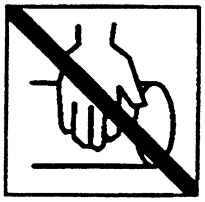
This symbol warns of hazardous moving parts that can cause injury. Loosely hanging clothing, jewelry, or hair can become tangled in such mechanisms. Use care when working in these areas.



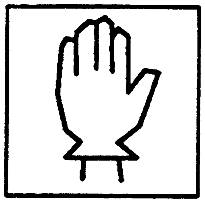
This symbol is displayed on the door in front of the photoconductor drum. The drum is sensitive to light and can be damaged if exposed to light for extended periods. Keep the drum shielded from direct light.



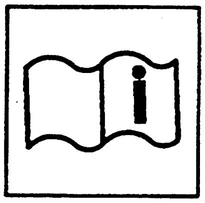
This symbol cautions to handle the photoconductor drum from the inside only. Handling the outside surface of this drum can cause damage.



This symbol cautions not to handle the outside surface of the photoconductor drum. Handling the outside surface of this drum can cause damage.



This symbol identifies the need for gloves when handling the photoconductor drum. Handling the drum without gloves can cause damage to the drum.



This symbol alerts when to consult the operator's or maintenance manual before performing maintenance in this area.

Documentation Warning and Caution Notes

Warning and Caution notes are used in the hardware documentation for the reasons described below.

Warning

The WARNING sign denotes a hazard. It calls attention to a procedure, practice, or the like, which, if not done correctly or adhered to, could result in injury. Do not proceed beyond a WARNING sign until the indicated conditions are fully understood and met.

Caution

The CAUTION sign denotes a hazard. It calls attention to an operating procedure, practice, or the like, which, if not done correctly or adhered to, could damage or destroy part or all of the product. Do not proceed beyond a CAUTION sign until the indicated conditions are fully understood and met.

Safety Standards and General Considerations

The F100 printer has been designed to conform to recognized technical standards, including the following national and international product safety standards and norms:

UL 1950
EN 60950 (IEC 950)
CSA C22.2 No. 950

Any unauthorized removal of safety covers, manipulation of safety switches, and interference with the safety system is strictly prohibited. Such actions can cause personal injury and can damage the system. Also make sure that the operating and maintenance areas are not obstructed in any way.

Warning

With any drive mechanism, loosely hanging items of clothing and jewelry, such as ties, belt ends, necklaces, bracelets, and rings, and unprotected hair can cause injury if caught in the mechanism.

Careless handling of the printer, in the paper transport areas, for example, can cause injury.

The fusing station reaches extremely high temperatures during print operations. Before you do any work on or around the fusing station, always let the station cool down for at least 30 minutes. Always wear protective gloves to protect your hands from the possibly of burns.

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1

Installation, Power-ON, and Operator Panel

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Installation

Before beginning, review the *Guide to Successful Site Preparation*, HP part number C2750-90112, to be sure that all pre-installation instructions have been met.

Packaging

The printer has several subassemblies that are packaged separately from the main unit. These include:

- Photo conductor drum (PCD)
- Cleaning felt
- Fuser heating element.

Set these items aside for now; they will be installed later.

Protective Covering

With the printer located in its permanent installation site, remove all the protective covering that wraps the unit. Next remove all the tape that secured the printer's doors and covers during shipment.

Caution During installation, if the printer is moved from a cold environment into a warmer one, condensation may form. This can cause damage to electronic parts. Allow an acclimatization period of at least 24 hours before powering ON the printer.

Transport Locks

Remove all transport locks that were installed at the factory to prevent damage to the printer during shipment. Refer to Figure 1-1, and Figure 1-2 to identify the locations (Details A through N) of the transport locks. The removal of these locking devices is described in the following paragraphs.

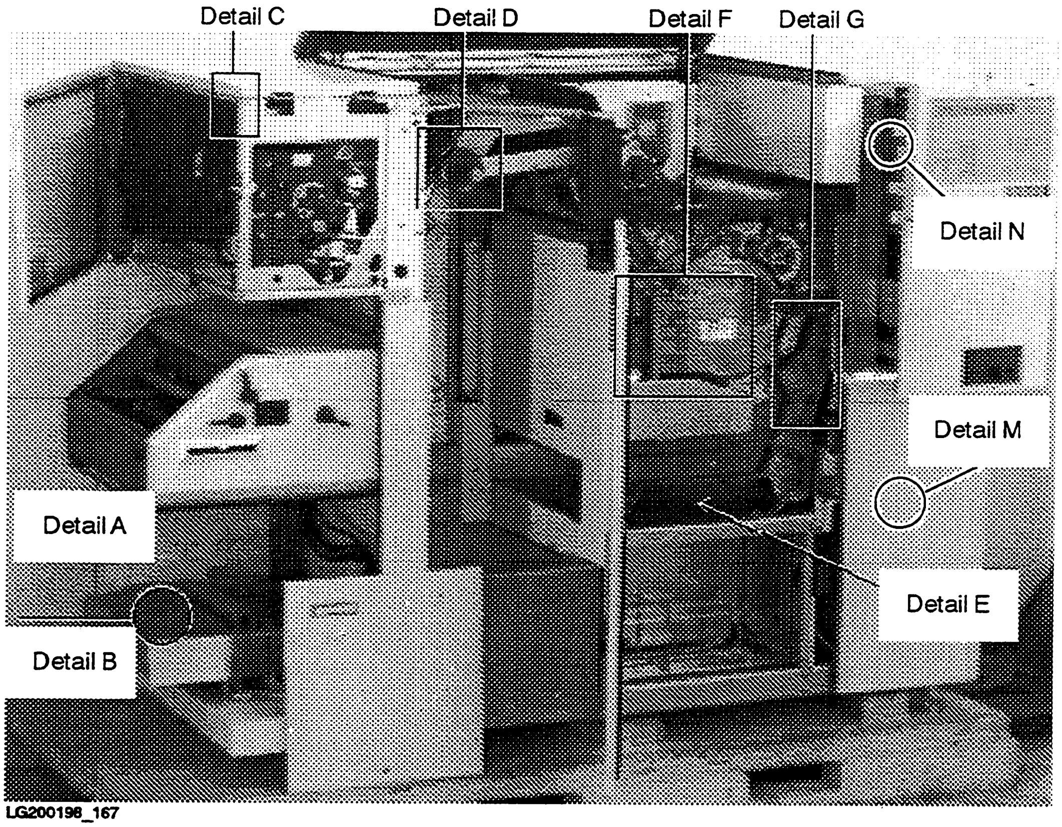
Detail C
Detail D
Detail F
Detail G
Detail N
Detail M
Detail A
Detail B
Detail E
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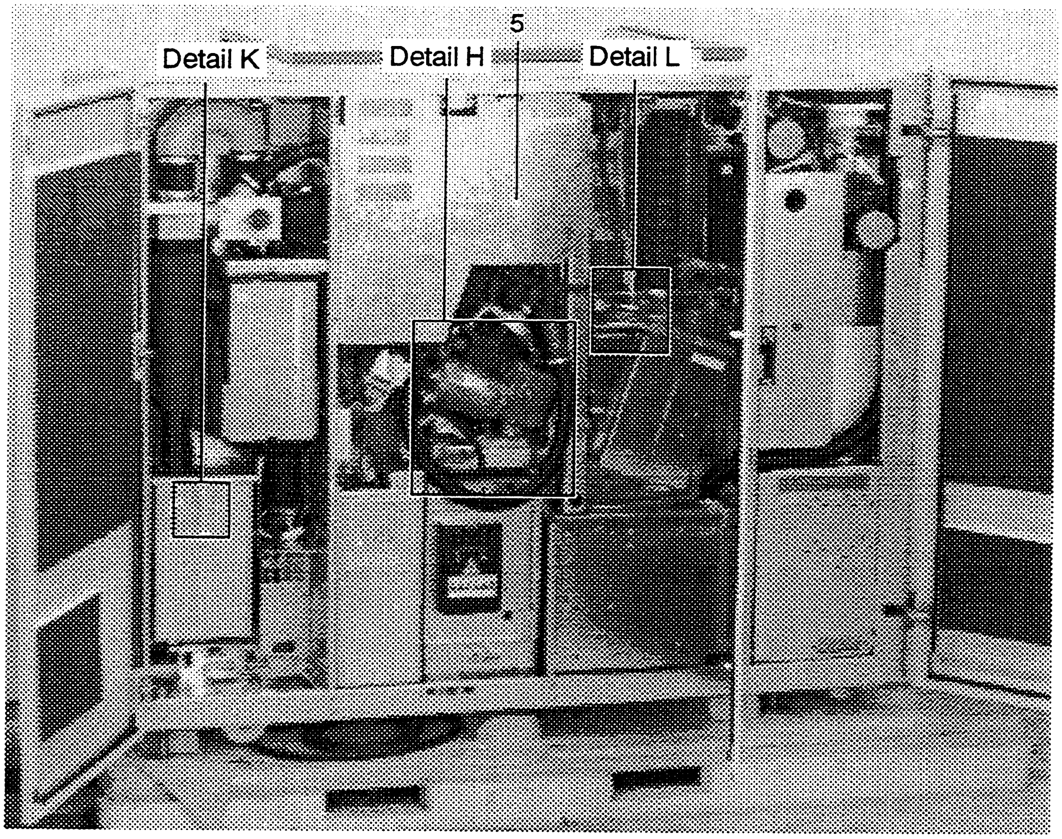
Figure 1-1. Transport Locks Operator Panel Side (Front)


5
Detail K
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Detail L
198_166a

Figure 1-2. Transport Locks Drive Side (Rear)

Detail A, Stacker Top Assembly Lock

Refer to Figure 1-3. Remove transport lock brackets “W1” and “W2” (6 mm Allen screws) located between the stacker top assembly and the left and right guide rails. Move stacker manually upwards.

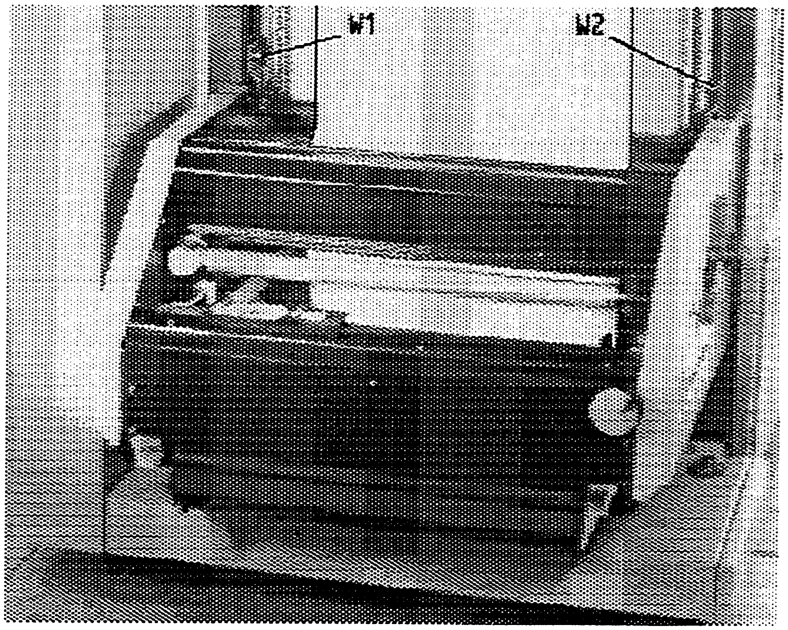


Figure 1-3. Stacker Top Assembly Transport Locks

Detail B, Stacker Table Slide Lock

Refer to Figure 1-1. From the front of the stacker assembly, reach through and remove the foam cushions from under the slide bar of the stacker table.

Detail C, Exhauster Hood Lock

Refer to Figure 1-4. Remove tie wrap "K" at lock bracket of exhauster hood.

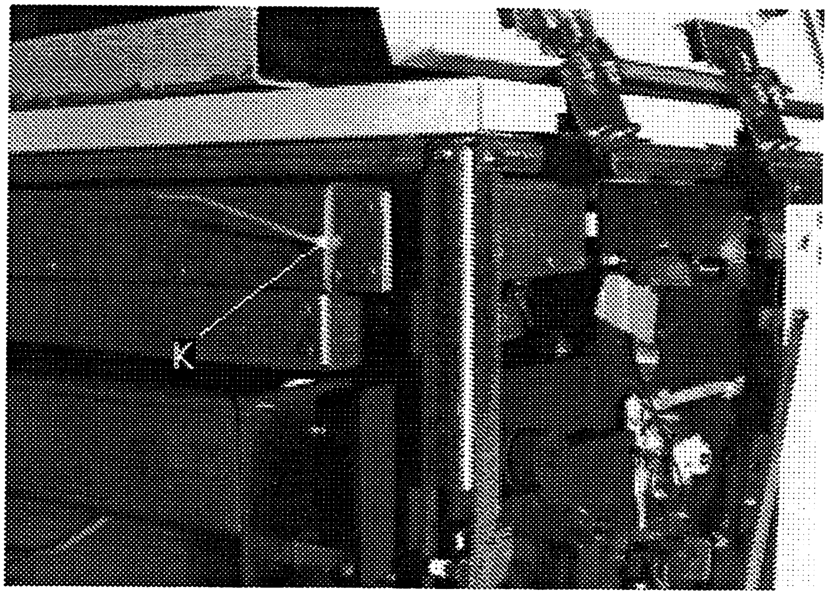


Figure 1-4. Exhauster Hood Transport Locks

Detail D, Swing Arm Rocker Lock

Refer to Figure 1-5. Remove tie wrap "K" between crosshead and loading rocker.

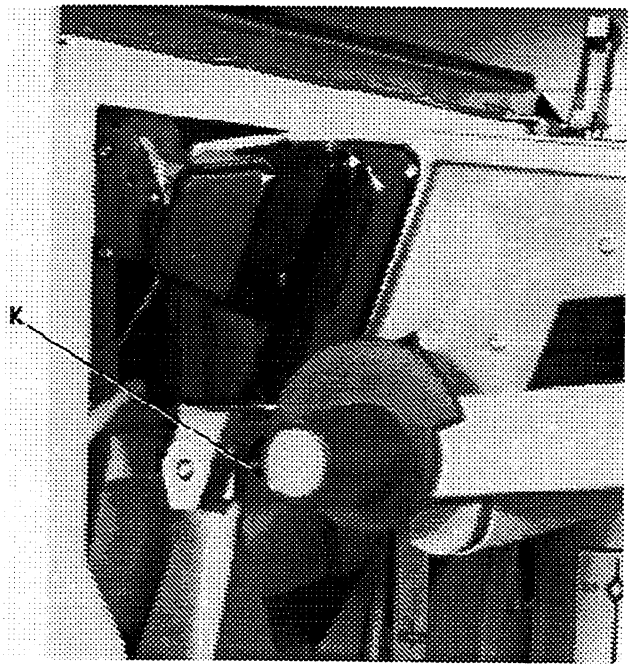


Figure 1-5. Swing Arm Transport Locks

Detail E, Developer Station Lock

Refer to Figure 1-6. Remove three screws "1" (10 mm socket), and three screws "2" (17 mm socket) from the bottom plate of the EP chassis.

Note It may be easier to access screws "1" and "2" from the left side of the chassis through the opening in the paper input area.

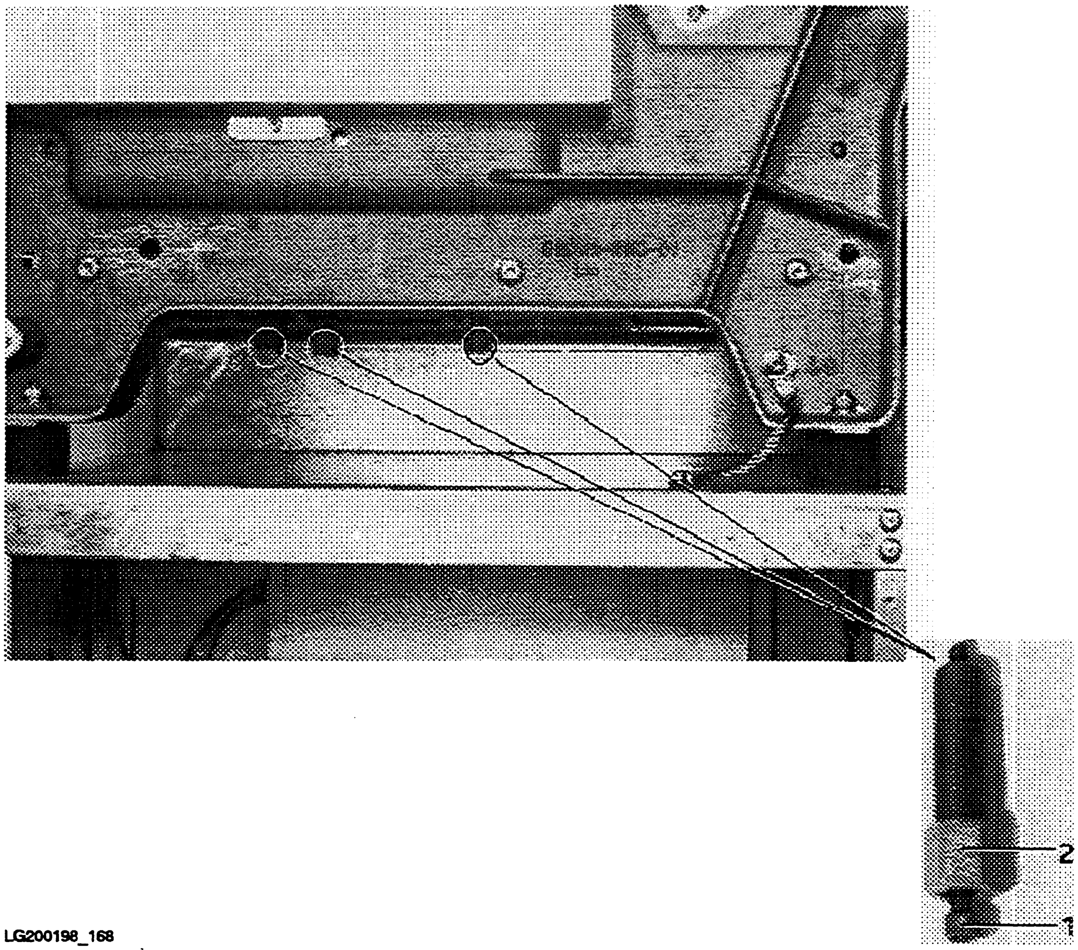


Figure 1-6. Developer Station Transport Locks (Front View)

Detail F, EP Cover Door Transport Lock

Refer to Figure 1-7. Remove the cover (not shown) below the EP door (attached by 4-Tx25 screws). Remove screw "3" (Tx25); then, remove pin "4" taped to the inside of the door. Slide the toothed bar (under the PC drum) to the left, to expose the hole in the door hinge shaft. Install pin "4" in this hole, and reinstall screw "3" to secure it in place. Check when the EP door is closed, that the developer station is lifted towards the PC drum. Reinstall the cover below the EP door.

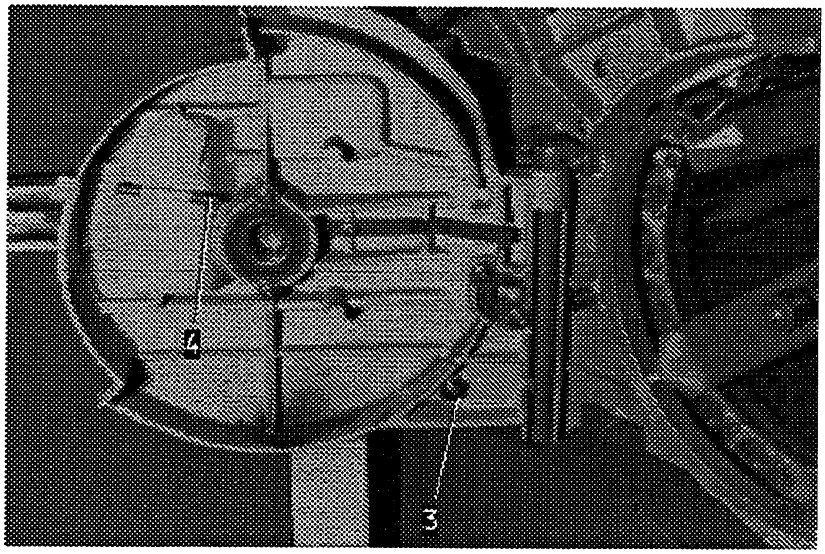


Figure 1-7. EP Cover Door Transport Lock

Detail G, Controller Transport Lock

Refer to Figure 1-8. Remove the tie wrap on the latch handle of the controller unit.

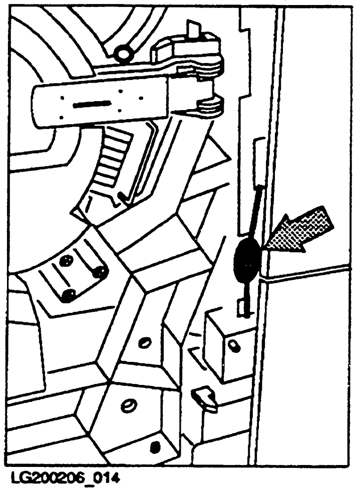


Figure 1-8. Controller Transport Lock

Detail H, Toner Box Cap Transport Lock

Refer to Figure 1-9 and Figure 1-10. Open the PCD cover door at the front of the printer (pulling out the developer station on the drive side is possible only after it has been lowered). Open cover plate "5" above developer station (Figure 1-2). Pull out developer station. Remove the pink cardboard, item "6", from between the developer rollers and the PCD. Remove tie wrap "K" at tonerbox cap. Slide the developer station back into the printer, and secure the door.

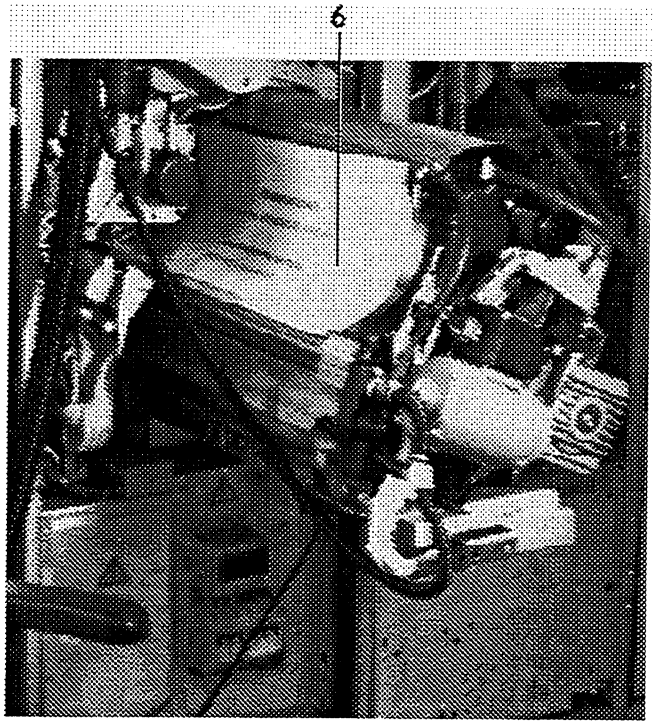


Figure 1-9. Toner Box Cap Transport Lock (1)

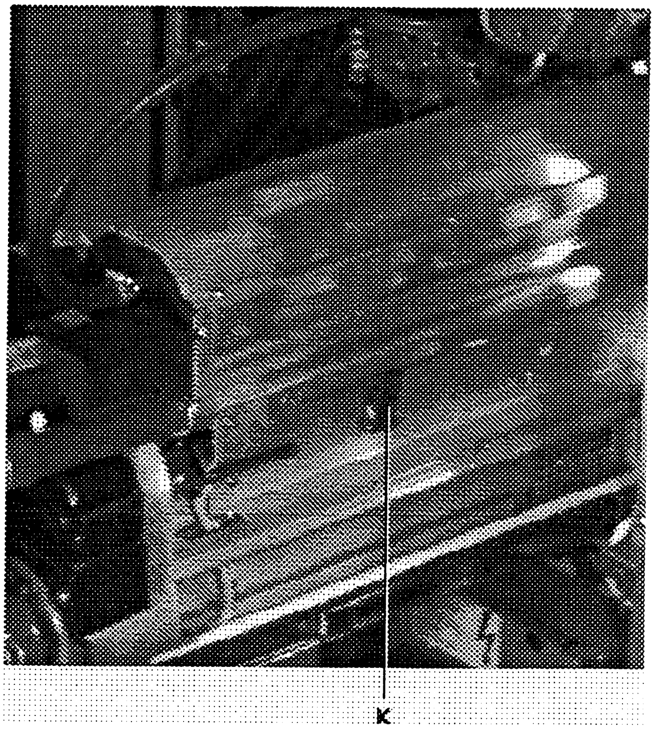


Figure 1-10. Toner Box Cap Transport Lock (2)

Detail I, Paper Shield Transport Lock

Refer to Figure 1-11. Remove the two foam cushions from the paper transport shield.

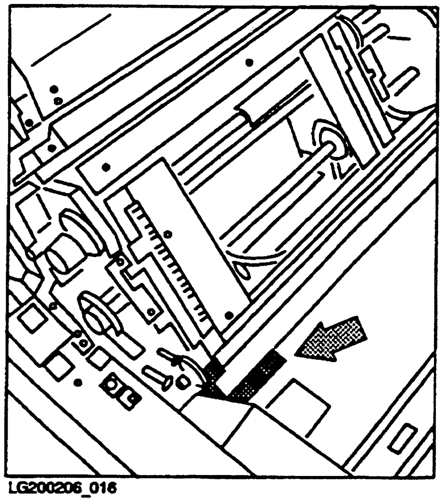


Figure 1-11. Paper Shield Transport Lock

Detail J, Fine Filter Transport Lock

Refer to Figure 1-12. Remove the tie wrap on the fine filter box.

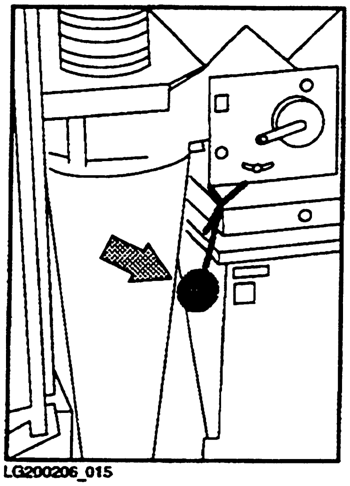


Figure 1-12. Fine Filter Transport Lock

Detail K, Catch Box Lock Lever Transport Lock

Refer to Figure 1-13. Remove tie wrap "K" at catch box lock lever.

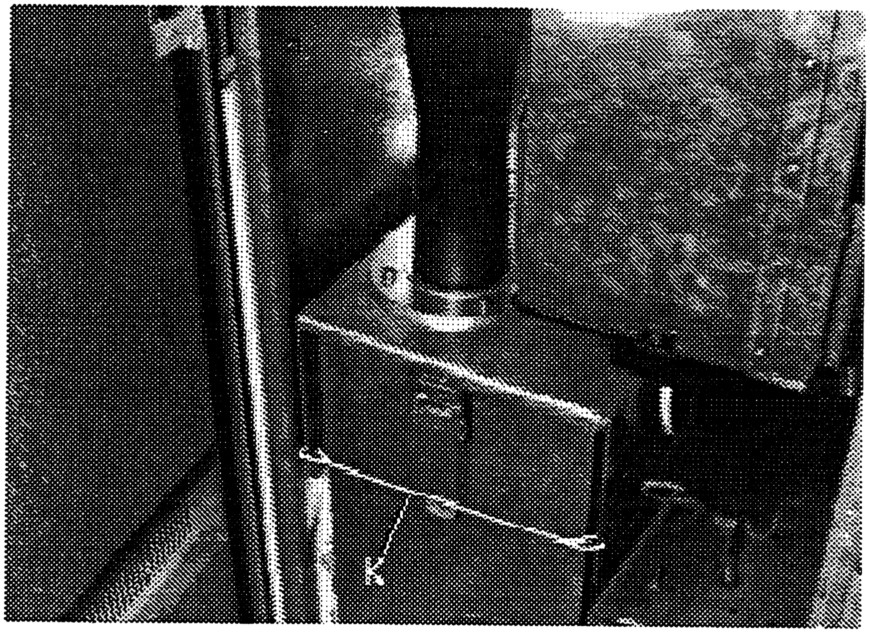


Figure 1-13. Catch Box Lock Lever Transport Lock

Detail L, Toner Bottle Transport Lock

Refer to Figure 1-14. Remove tie wraps "K" at handle of toner bottle assembly and at suction nozzle.

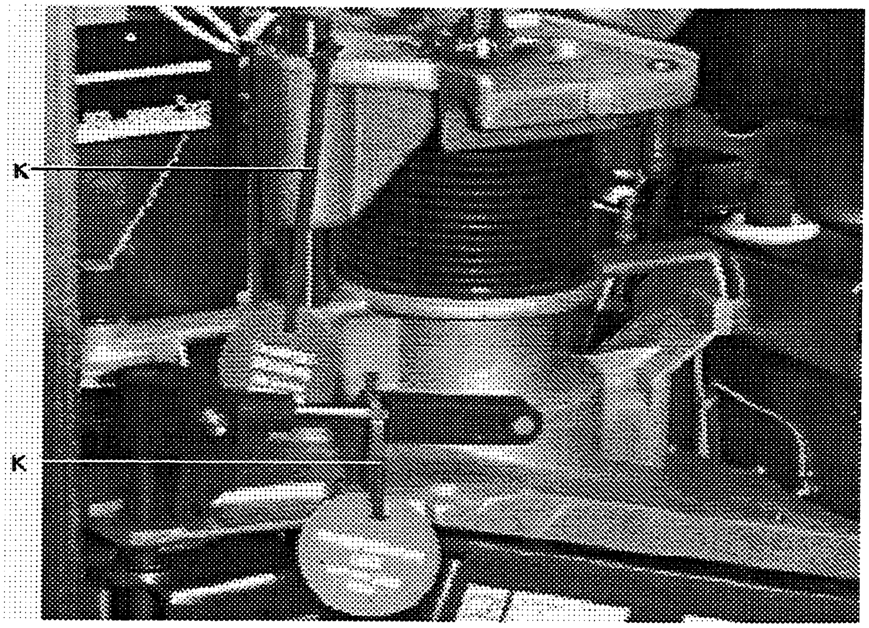


Figure 1-14. Toner Bottle Transport Lock

Detail M, Vacuum Assembly Lock

Access the vacuum assembly lock as follows:

1. Open door "T1" (refer to Figure 1-15).

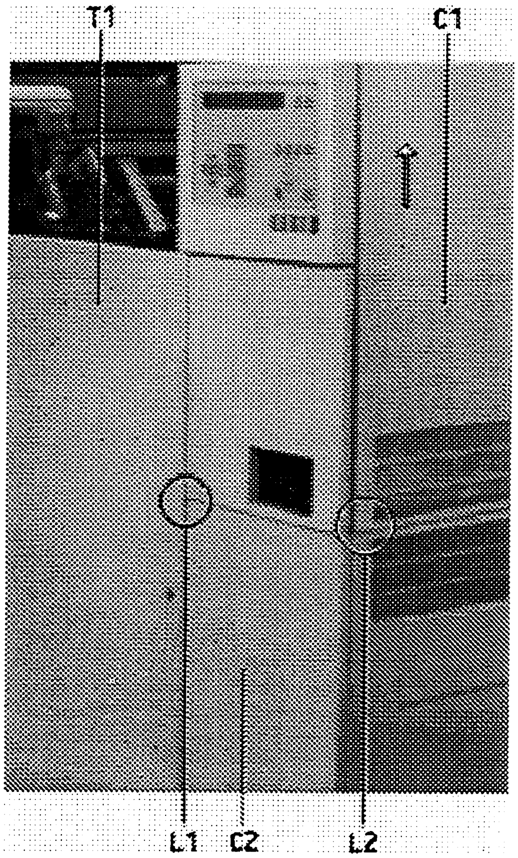


Figure 1-15. Front Side, View A

2. Open controller lock "L1".
3. Pull the controller out from the printer frame.
4. Lift and remove cover "C1".

5. Remove screws "S1" and "S2" (refer to Figure 1-16), and remove cover "C2".

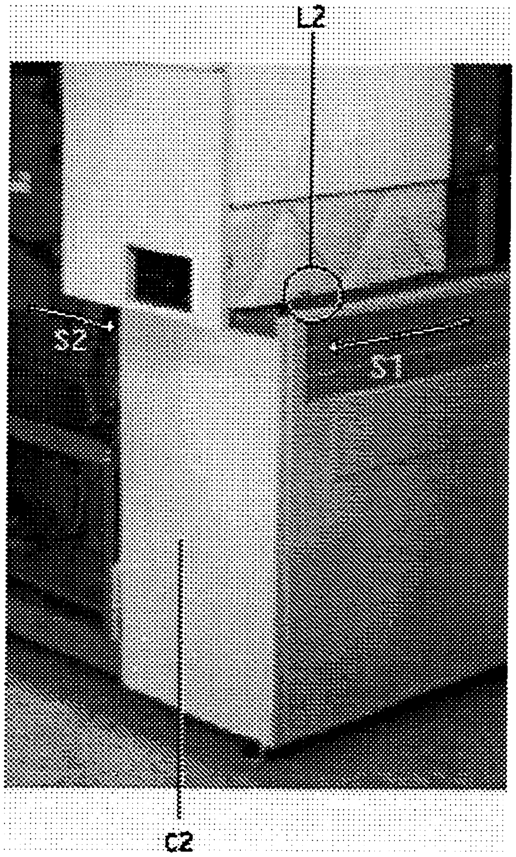
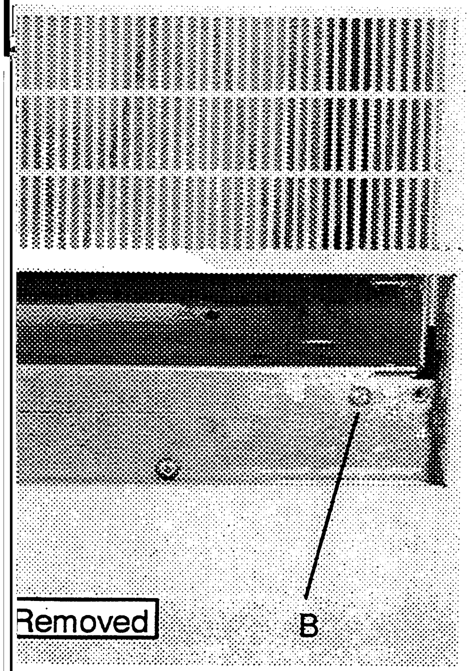


Figure 1-16. Front Side, View B

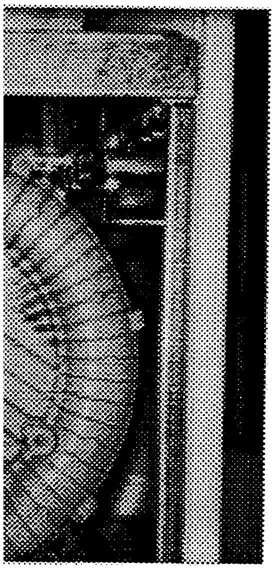
7).



bly Cover Removal

al cover above the vacuum assembly.

et above the vacuum assembly (refer to



embly Lock

Detail N, Cardcage Locks

From the front of the printer, slide out the controller assembly, and remove the front and rear EMI shields.

Caution When removing the inside EMI shield, exercise extreme caution to not damage the static overlay PCA (if installed).

Remove the inside EMI shield as follows, to avoid damaging the static overlay PCA connector:

1. Remove all screws securing the inside EMI shield except the top center screw.
2. Support the shield from the bottom and remove the top center screw.
3. Lower the shield only as far as necessary to swing out the bottom. As the shield swings out, look up behind it to make sure that the shield does not contact the static overlay PCA; then, remove the shield.

With the PCAs accessible, do the following:

1. Loosen the screws on the cardcage shipping locks, and slide the locks open (refer to Figure 1-19). Secure the locks on the open position by retightening the attaching screws.

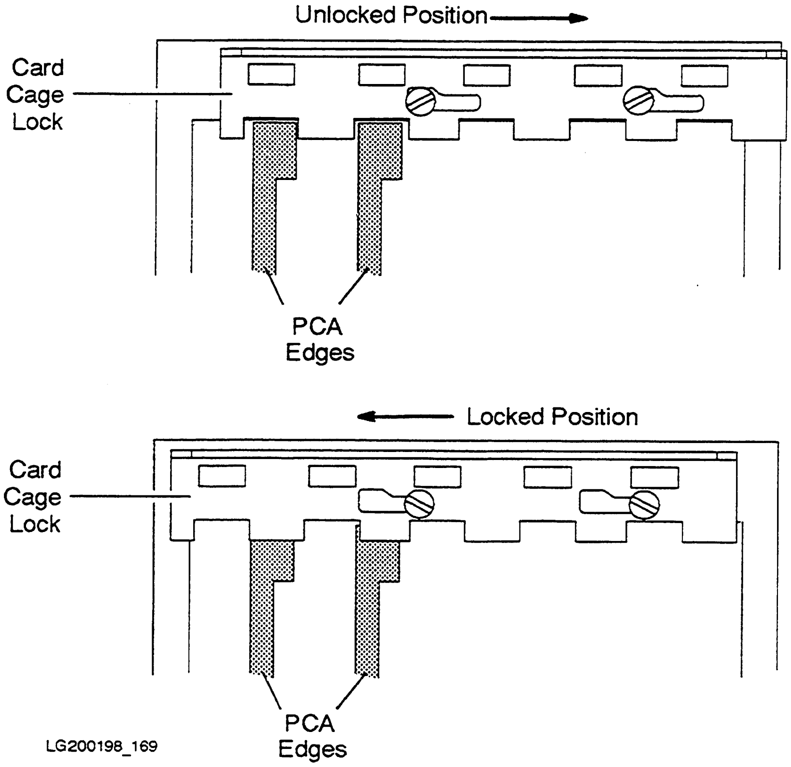


Figure 1-19. Cardcage Locks

2. Remove the RDL** PCA and connect the battery jumper (refer to Figure 1-20 and Figure 1-21). Reinstall the PCA in the cardcage.

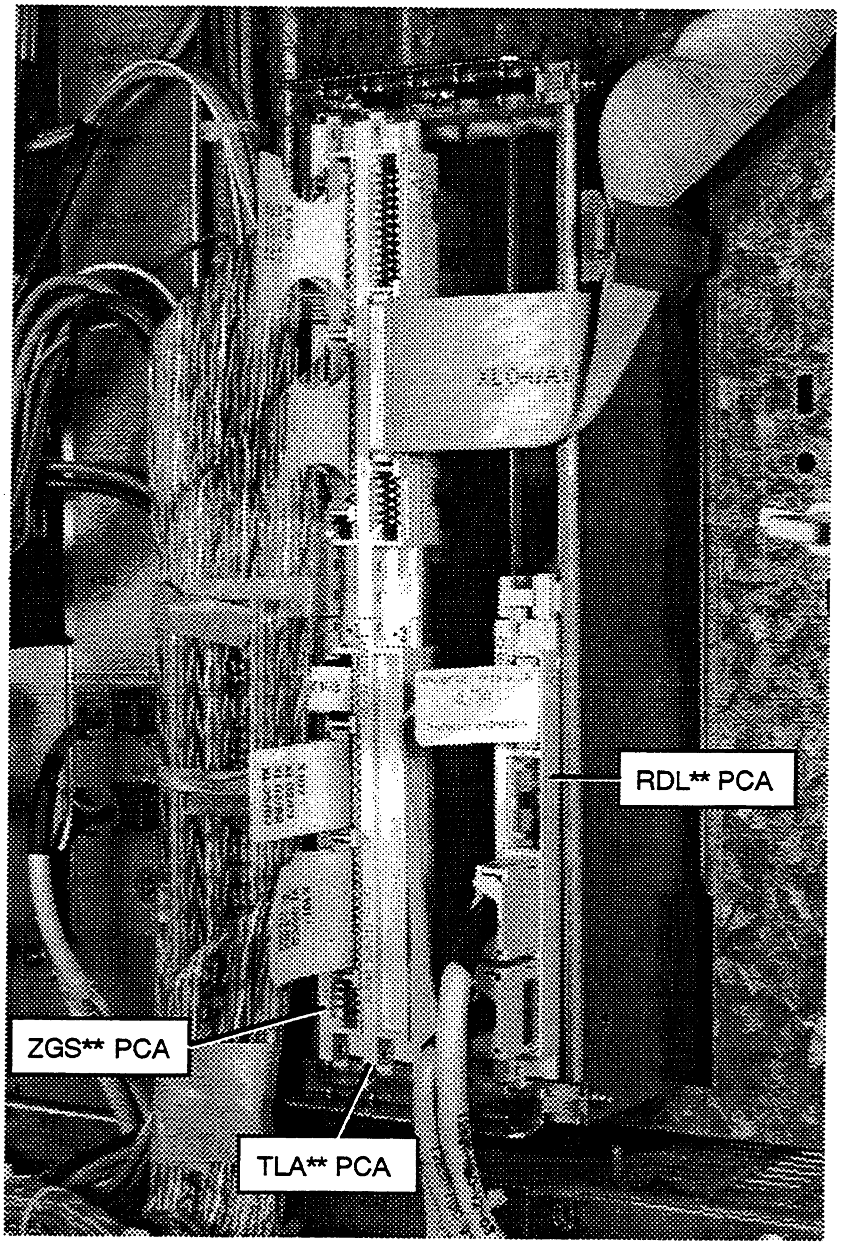

RDL** PCA
ZGS** PCA
TLA** PCA
fm1020

Figure 1-20. RDL** PCA and TLA** PCA Locations

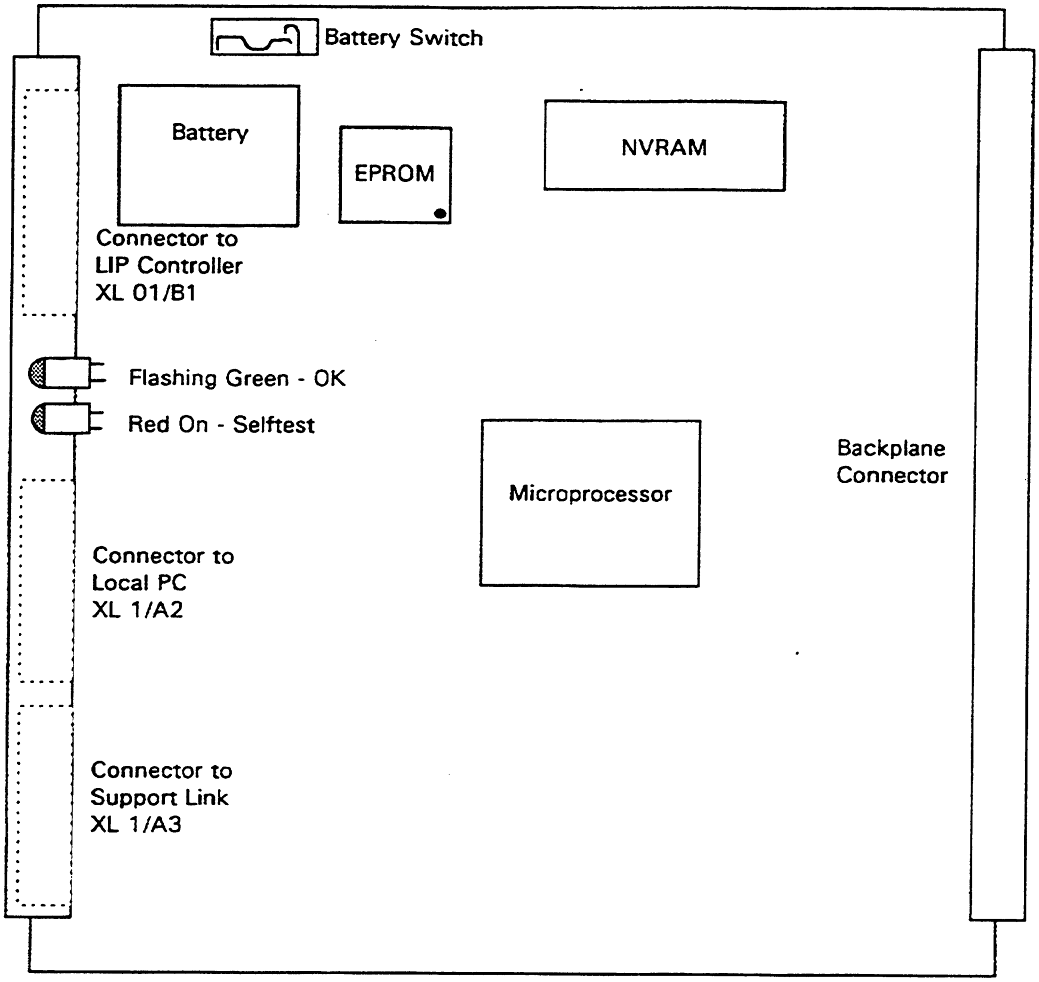

Battery Switch
Battery
EPROM
NVRAM
Connector to
LIP Controller
XL 01/B1
Flashing Green - OK
Red On - Selftest
Microprocessor
Backplane
Connector
Connector to
Local PC
XL 1/A2
Connector to
Support Link
XL 1/A3

Figure 1-21. RDL PCA**

3. Remove the TLA** PCA and verify that the 240 DPI/300 DPI jumper is in the closed (300 DPI) position (refer to Figure 1-20 and Figure 1-22). Reinstall the PCA in the cardcage.

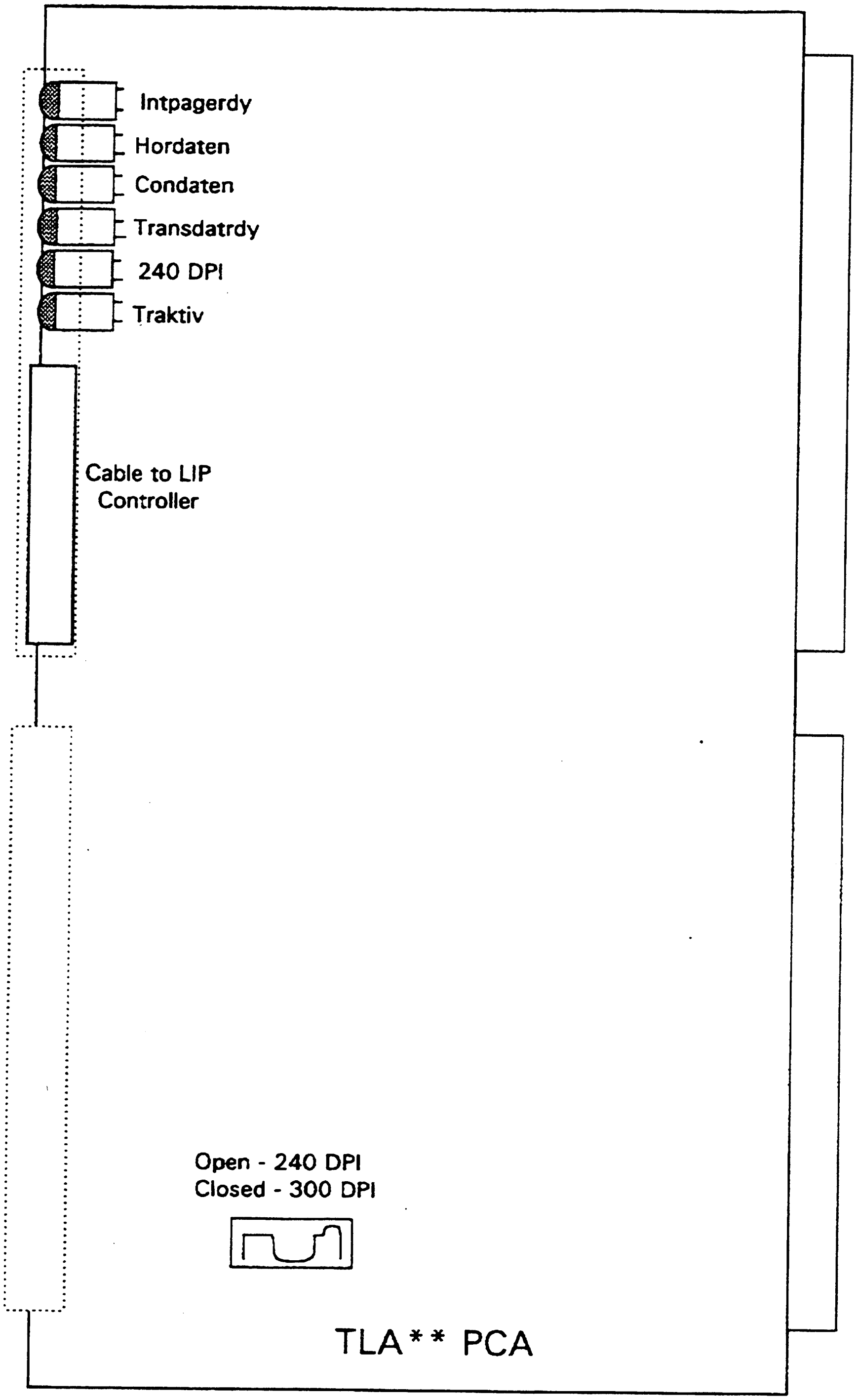

Intpagerdy
Hordaten
Condaten
Transdatrdy
240 DPI
Traktiv
Cable to LIP Controller
Open - 240 DPI
Closed - 300 DPI
TLA** PCA

Figure 1-22. TLA** PCA

4. Verify that all DIP switches on the SCSI PCA are in the closed (as indicated on the switch), or short (as indicated on the PCA) position.

5. Verify all connections on the PCAs and submodule wiring that may have worked loose during shipment.
6. Carefully reinstall both EMI shields.

Additional Transport Locks

Remove the dummy floppy disks from the disk drives (front of printer). Insert the function code disk in the lower drive, and the font disk in the upper drive.

Note

Retain all shipping bolts, cushions, locks and tags for later use, such as moving the printer.

Leveling the Printer

With a 9-inch torpedo level (0.1 mm/m accuracy), adjust the level of the printer by turning the leveling feet. Raise the printer high enough so that the casters no longer touch the floor.

Leveling feet J1 through J4 are located as shown in Figure 1-23).

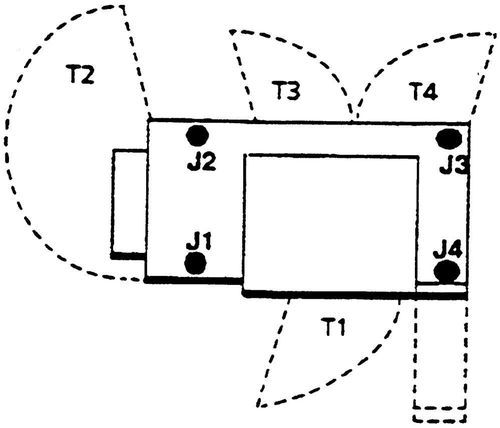


Figure 1-23. Leveling Feet Locations

- Leveling feet J1 and J2 are accessible when the stacker is in upper position. Manually lift up the stacker.
- Leveling foot J3 is accessible after opening the rear door.
- Leveling foot J4 is accessible after removing cover "C2" (refer to Figure 1-15).

Leveling the Printer in Longitudinal Direction

Measure with a level (0.1 mm/m accuracy) at the longitudinal frame bars on the front of the printer.

Printer Front Side. Place level "W" on longitudinal frame bar on front side (refer to Figure 1-24). Level the printer with leveling feet 1 and 4 in the longitudinal direction.

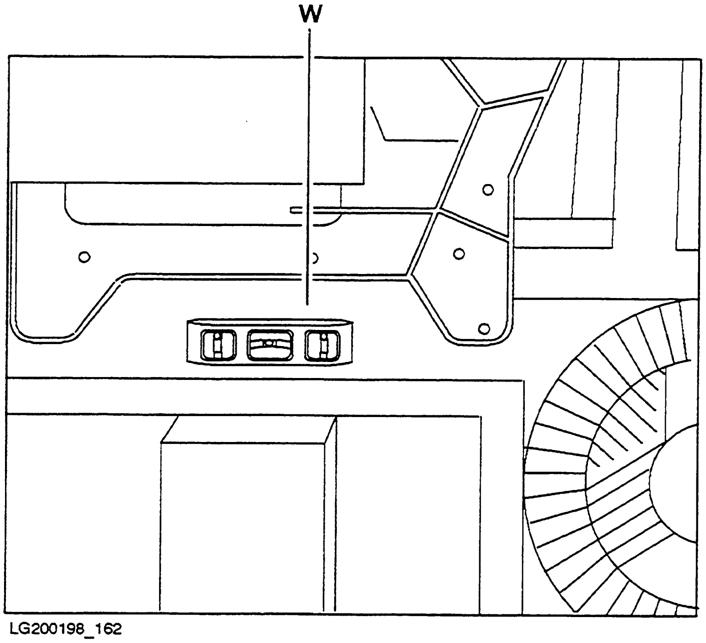


Figure 1-24. Leveling the Printer in Longitudinal Direction

Leveling the Printer in Transverse Direction

Measured with a level (0.1 mm/m accuracy) at tractor drive axle of paper transport and at fuser roller of fuser station.

Tractor Assembly Drive Axle. Place level "W" on tractor drive axle "V" (refer to Figure 1-25). Take care that the level rests on the machined teeth of the axle. Turn leveling feet 3 and 4 until printer is leveled.

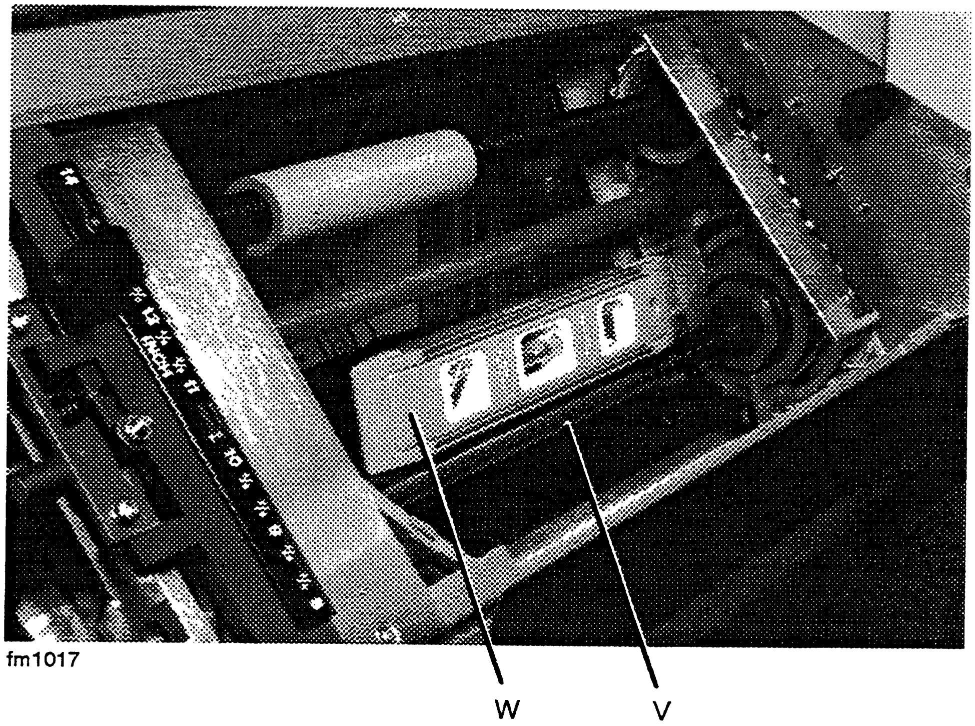


Figure 1-25. Leveling the Printer in Transverse Direction

Note Check longitudinal direction again, and repeat adjustment if necessary.

Fuser Roller.

Caution Place a sheet of paper on the fuser roller to avoid damage.

Place level "W" on fuser roller "F" (refer to Figure 1-26).

Turn leveling feet J1 and J2 until fuser roller is aligned. Fuser station and tractor drive axle must be leveled to match each other thin a tolerance of 0.05 inches.

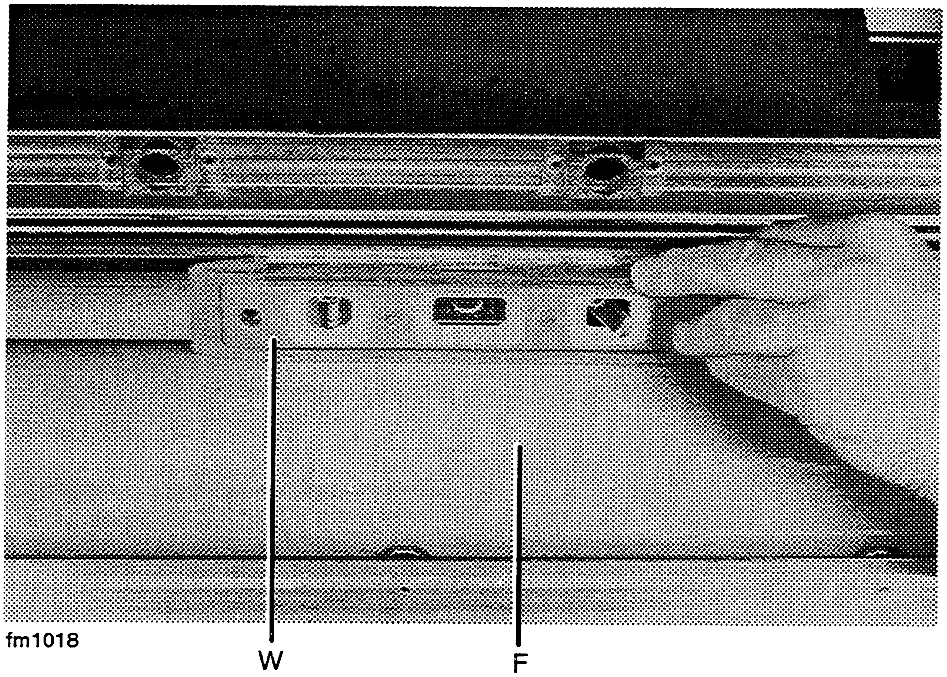


Figure 1-26. Fuser Roller

After the printer has been properly leveled, tighten the top nut on all leveling feet against the frame.

Note Printer alignment must be repeated before every power-on following the relocation of the printer.

Securing the Paper Feed Assembly

Old Style. Loosen screw "S"; insert pins "B" (refer to Figure 1-27).

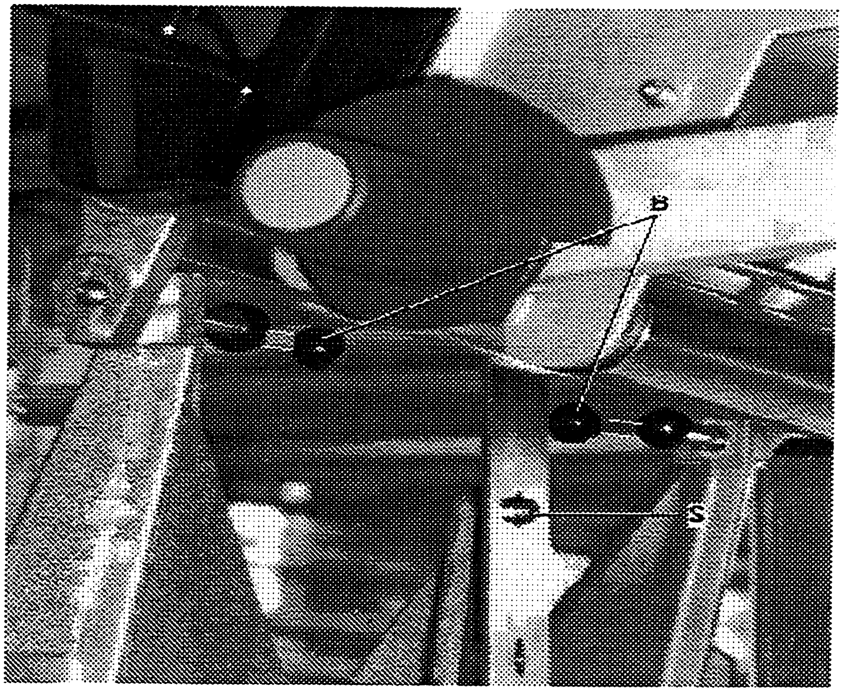


Figure 1-27. Leveling the Crosshead (Old Style)

New Style. Loosen 2 screws "S"; insert pins "B" (refer to Figure 1-28).

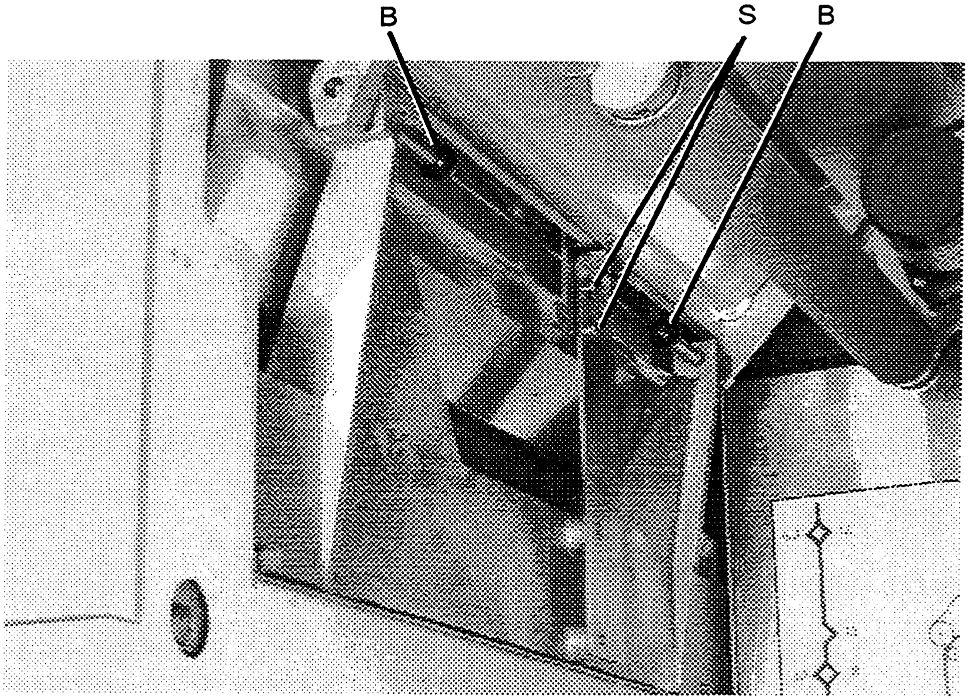


Figure 1-28. Leveling the Crosshead (New Style)

Caution Pins "B" should be inserted without force. If this cannot be done, recheck the leveling of the printer; if necessary, repeat the leveling adjustments.

Note After a few days of operation, check the leveling again in the longitudinal and transverse directions (deviations may be caused by movement of raised floors or the like).

Cabling

Power Connection

Note

- Installation power requirements are detailed in the *Guide to Successful Site Preparaion*, HP part number C2750-90112.
- Where it is necessary to use the voltage selectable transformer (HP product number C2763A), refer to the installation instructions that accompany it regarding power connection.

Power Connection 50 Hz. The printer requires an input voltage of 230 Vac (three-phase power), with an input circuit breaker rated to comply with local code. The printer is connected via flexible mains cable with 5 leads.

Power Connection 60 Hz. The printer requires an input voltage of 208 Vac (three-phase power, with an input circuit breaker rated at 50A. Power connection location is shown in Figure 1-31. The printer is connected via flexible mains cable with 4 leads.

Power Connection Procedure

Warning

To reduce the risk of electric shock, never operate the printer with the ground conductor disconnected. An earth connection is essential before connecting the supply. Reliable ground circuit continuty is vital for safe operation of the printer.

---

1. Loosen 2 quick clamp allen screws "S1" (4 mm) and open the power junction box (refer to Figure 1-29).

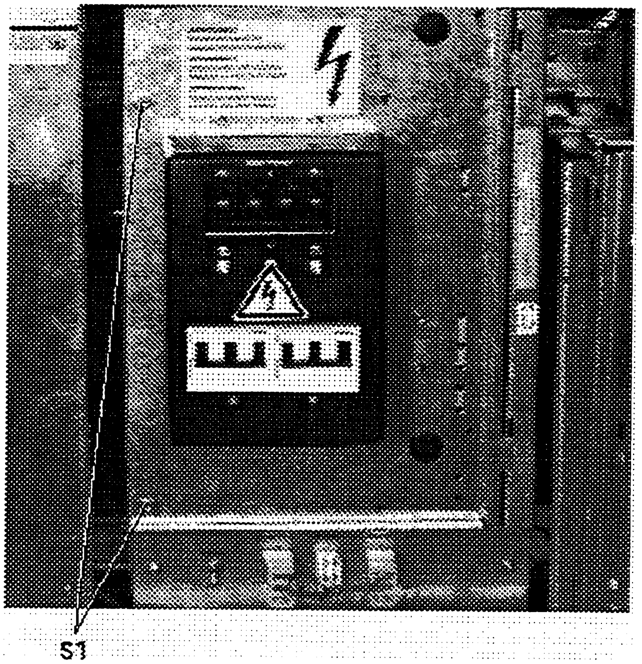


Figure 1-29. Power Junction Box

2. Remove covers "1" and "2" by unscrewing 4 screws "S2" (refer to Figure 1-30).

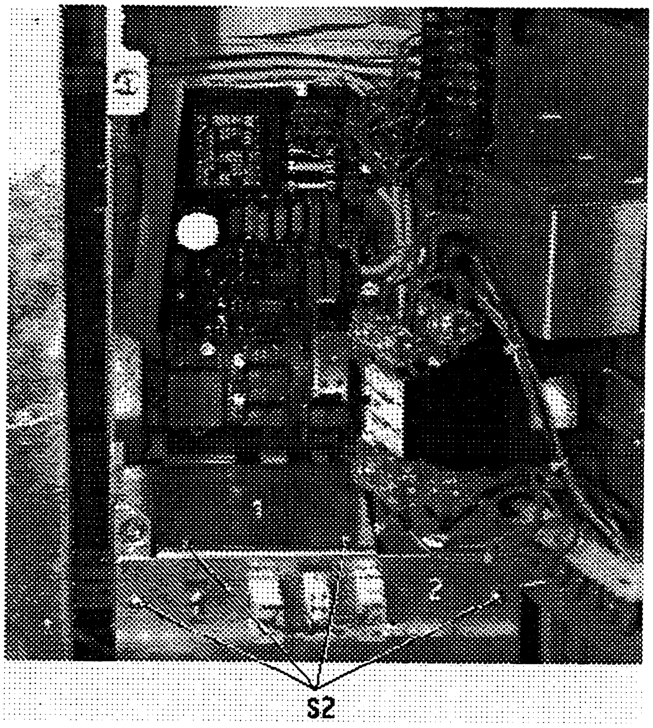


Figure 1-30. Power Junction Box Covers

3. Insert cable from the left side, through the center hole and into the cable duct. Guide the cable through strain relief clamp "V" (refer to Figure 1-31).

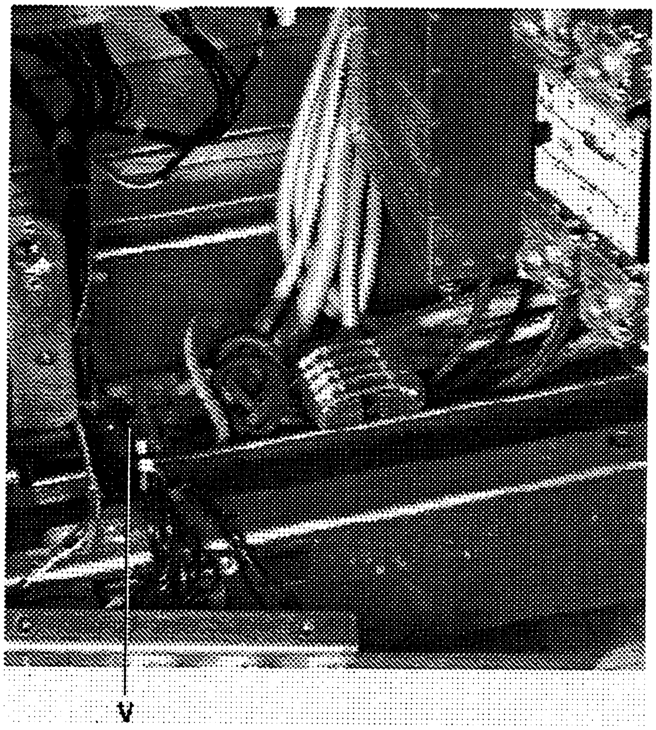
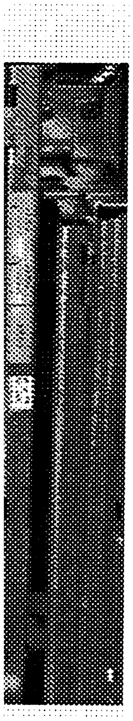


Figure 1-31. Power Connection Terminals

4. Connect cable leads to power connection terminals as follows:
   - L1, L2, L3, N, PE, (50Hz)
   - L1, L2, L3, PE, (60Hz)
5. Tighten strain relief clamp.
6. Reinstall all covers.



Before Power-ON

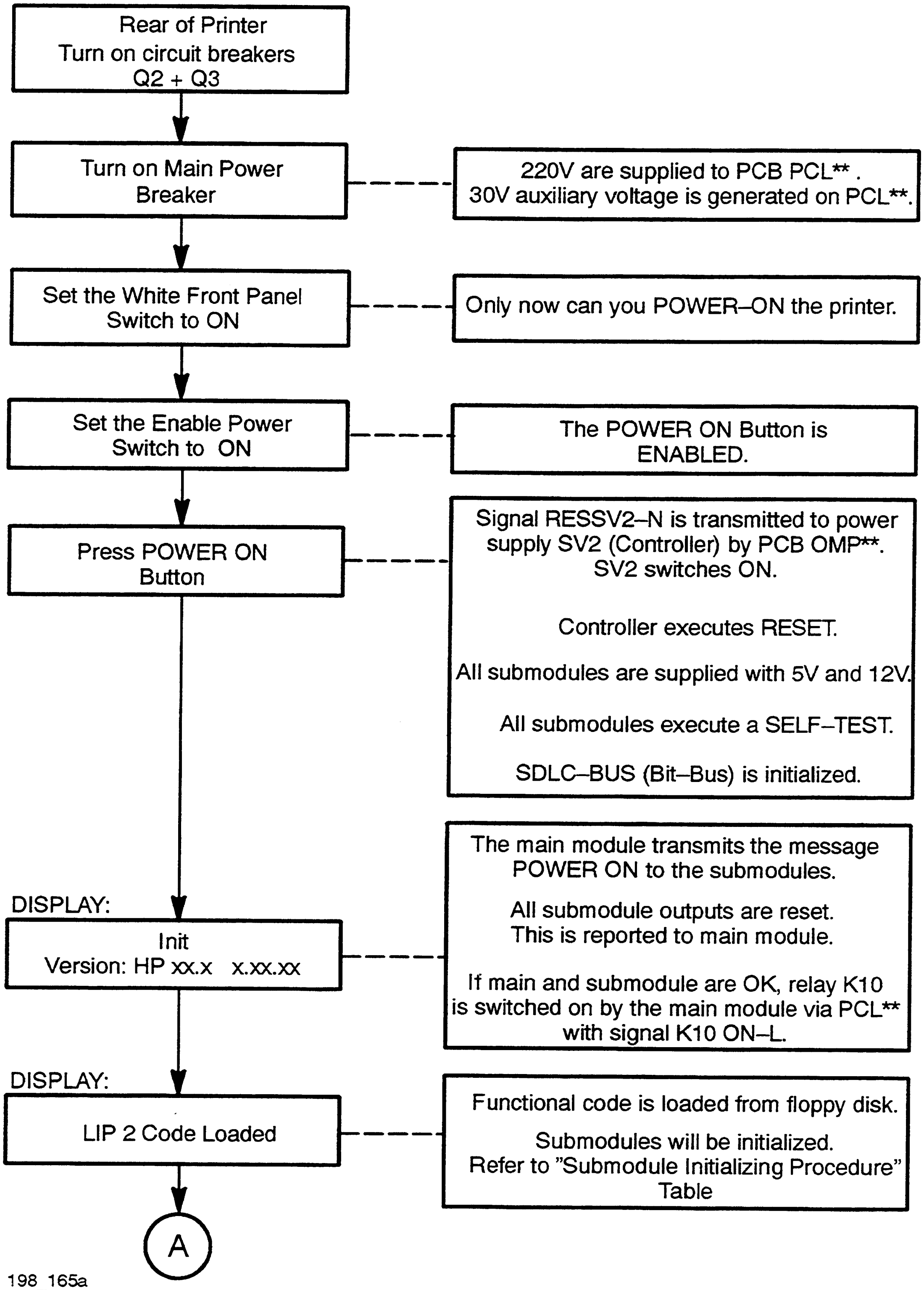
Installing Miscellaneous Hardware and Consumables

Item	Installation Procedure
Cleaning felt	Refer to the *Model HP 5000 Operator's Manual*, HP part number C2750-90110 for this information.
Photo conductor drum	Refer to *Maintenance and Repair Routine 41A1* for this information.
Status beacon	Refer to *Maintenance and Repair Routine 53E1* for this information.
Fuser heating element	Refer to *Maintenance and Repair Routine 62A1* for this information.
Fine filter	Refer to the *Model HP 5000 Operator's Manual*, HP part number C2750-90110 for this information.
Fuser oil	Refer to the *Model HP 5000 Operator's Manual*, HP part number C2750-90110 for this information.
Cleaning brush	Refer to the *Model HP 5000 Operator's Manual*, HP part number C2750-90110 for this information.
Empty toner bottle in catchbox	Refer to the *Model HP 5000 Operator's Manual*, HP part number C2750-90110 for this information.
Function code and font disks	Function code disk in the lower disk drive; printer font disk in the upper disk drive.

Go to the Power-ON Procedure.

Power-ON Procedure

Follow the procedure outlined in Figure 1-33 and Figure 1-34 below.



Rear of Printer
Turn on circuit breakers
Q2 + Q3

Turn on Main Power Breaker

220V are supplied to PCB PCL** .
30V auxiliary voltage is generated on PCL**.

Set the White Front Panel Switch to ON

Only now can you POWER–ON the printer.

Set the Enable Power Switch to ON

The POWER ON Button is ENABLED.

Press POWER ON Button

Signal RESSV2–N is transmitted to power supply SV2 (Controller) by PCB OMP**.
SV2 switches ON.

Controller executes RESET.

All submodules are supplied with 5V and 12V.

All submodules execute a SELF–TEST.

SDLC–BUS (Bit–Bus) is initialized.

DISPLAY:

Init
Version: HP xx.x x.xx.xx

The main module transmits the message POWER ON to the submodules.

All submodule outputs are reset.
This is reported to main module.

If main and submodule are OK, relay K10 is switched on by the main module via PCL** with signal K10 ON–L.

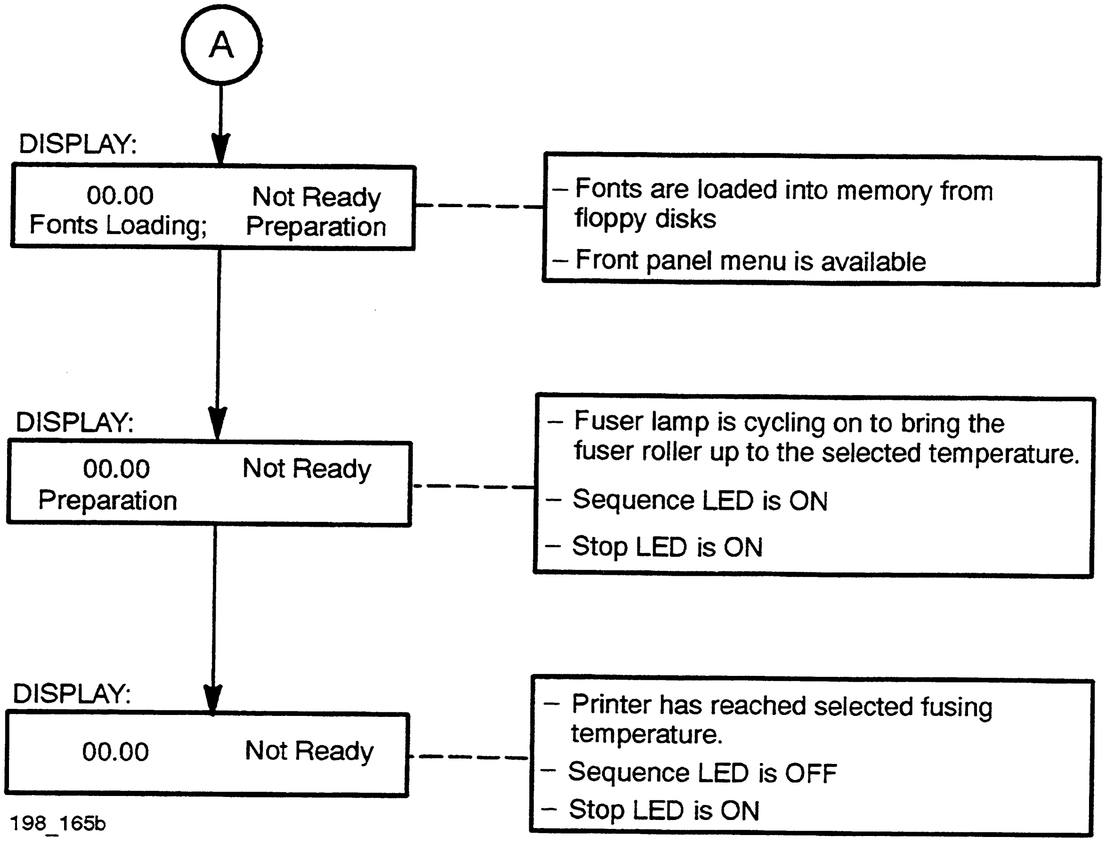
DISPLAY:

LIP 2 Code Loaded

Functional code is loaded from floppy disk.

Submodules will be initialized.
Refer to "Submodule Initializing Procedure" Table

Figure 1-33. Power-ON Procedure


A
DISPLAY:
00.00 Not Ready
Fonts Loading; Preparation
DISPLAY:
00.00 Not Ready
Preparation
DISPLAY:
00.00 Not Ready
198_165b

- Fonts are loaded into memory from floppy disks
- Front panel menu is available

- Fuser lamp is cycling on to bring the fuser roller up to the selected temperature.
- Sequence LED is ON
- Stop LED is ON

- Printer has reached selected fusing temperature.
- Sequence LED is OFF
- Stop LED is ON

Figure 1-34. Power-ON Procedure (continued)

Submodule Initializing Procedure

Table 1-1. Submodule Initializing Procedure

SUBMODULE 1 (paper transport) - Transfer corotron cleaned. - Paper width determined. - Transfer bars swivelled on and off. - Power transport stepper motor synchronized to 1/6 inch. - Paper motion sensor current adjusted.
SUBMODULE 2 (basic) - Charge corotron cleaned. - Discharge corotron cleaned. - Green discharge lamp aligned. - Red discharge lamp in developer station aligned.
SUBMODULE 3 (fuser station) - Edge alignment moved to initial position. - After SEQUENCE LED goes out, paper brake at crossbeam adjusted according to paper width determined by Submodule 1. - After SEQUENCE LED goes out, oiling device of fuser station adjusted to paper width. - Fuser saddle swivelled off. - Pressure roller swivelled off. - Stacker initialization and saddle position adjusted. - Fuser controlled.
SUBMODULE 4 (character generator) - 5 V voltage at SV1 (character generator) switched on and off.

Note Refer to the *Troubleshooting* section to resolve errors.

Front Panel Verifications

Once the printer has been powered ON, it is important to verify the following parameters:

- Drum type (Menu 1.11)
- Toner type (Menu 1.12)
- Channel address (Menu 5.13)
- Channel parms (Menu 5.13; must be set to 00—asynchronous).

The *Operators Manual*, HP part number C2750-96110 should be referred to for directions and additional information. The parameters listed above represent only a partial list. As part of operator training, the CE should review with the customer the additional requirements, such as: paper length, width, print contrast, fonts, and other parameters necessary for printer operation.

Fill Developer

Refer to Maintenance and Repair Routine 42B2.

Fill Toner

Do the Toner Fill Routine, Menu 3.6.

Store Samples

Store factory print samples and default list in a safe place so they are not lost, and are readily available if needed.

HELPU

Using the HELPU facility, it is necessary to verify and set the following:

- HP Serial Number
  a. Verify the serial number within HELPU corresponds to the serial number located on the back of the printer.
- Date and Time
  a. From the Main Menu, enter the Miscellaneous Submenu.
  b. Enter the Date Submenu.
  c. Using the tab and number keys, enter the correct date and time.
  d. Return to the Main Menu.
  e. Enter Printer F100/F135 Submenu.
  f. Enter RDC Commands Menu.
  g. Enter Date and Time Menu.
  h. The line titled *PC* should show the correct date and time. Highlight *Store values from PC into D745* and press the Return key. The curent date and time on the PC should now be downloaded to the printer. Check the Date and Time Submenu again to verify the change.
- Backup NVRAM
  a. From the Main Menu, enter Printer F100/F135 Submenu
  b. Enter Main Module Submodule, enter NVRAM Submenus
  c. Enter Backup Submodules
  d. Answer "Yes" at prompt to continue
  e. HELPU now copies NVRAM contents to the PC

Operator Panel Menu

HP5000 Fanfold Printer Operator Panel Menu

See Operator Manual P/N C2750-69110 (E0593)

Press MENU for Master Menu

Cancel = 0
(Page 3-3)

- Reset Print Environment
- V - Yes

Parameter = 1
(Page 3-4)

- 1.0 Paper Length
  - 6" - 16" (1/6" Step)
- 1.1 Paper Width
  - 4" - 18"
- 1.2 Number of Copies
  - 1-225
- 1.3 Page Length
  - 3" - 16" (1/6" Steps)
- 1.6 Unit of Measure
  - Inch, mm, Pel
- 1.7 Horizontal Shift
  - -5.7" to +5.7"
- 1.8 Vertical Shift
  - -5.7" to +5.7"
- 1.9 Print Contrast
  - Econ, Lite, Nor, Drk
- 1.10 Fuser Temp
  - Nrml, -10,-20,-30,-40
- 1.11 Drum Type
  - 1 - 9
- 1.12 Toner Type
  - 1 - 9
- 1.13 Fusing Contact
  - Normal, Reduced
- 1.14 Fuser Oil
  - 30%,70%, Nor, 150%
- 1.15 Store Parameters
  - 0 - 49
- 1.16 Recall Parameters
  - 0 - 49

Status = 2
(Page 3-14)

- 2.0 Remaining Pages
  - Developer
  - Antistatic Strips
  - Corotrons
  - Cleaning Brush
  - Filter Set
  - Maintenance
  - Drum
- 2.1 Page Count (Feet)
  - User / Total
- 2.3 Error Bytes

Supply = 3
(Page 3-18)

- 3.0 Developer Purge
- 3.1 Antistatic Strip Changed
- 3.2 Change Corotrons
- 3.3 Cleaning Brush Changed
- 3.4 Filter Set Changed
- 3.5 Developer Fill
- 3.6 Toner Fill
- 3.7 Maintenance Done
- 3.8 Drum Changed

Mode = 4
(Page 3-21)

- 4.0 Online
  - Disable Diagnostic Connection
- 4.1 Online Test
  - Enable Diagnostic Connection
- 4.3 Boot
- 4.4 Dump
  - .0 - No Dump
  - .1 - Power-up Page
  - .2 - Hex Dump
  - .3 - Font Print
- 4.5 Clear Print
  - Clear Data Buffer
- 4.6 DE Test Mode
  - Device Electronics Tests

Function = 5
(Page 3-24)

- 5.0 Stacker Height
  - 4.1" to 15.7"
- 5.1 Auto-Stack
  - (Option)
- 5.2 Manual Lift Height
  - (Option)
- 5.3 Lift Position
  - (Option)
- 5.4 Platform Position
  - (Option)
- 5.5 Clean Corotrons
- 5.6 Print Functions
  - .0 Orientation
  - .1 Job Separation
  - .2 Font I.D.
  - .3 Lines per Page
  - .4 Factory Default
- 5.8 Keyboard Echo
- 5.9 External Paper
- 5.10 Calibrator
- 5.13 Channel
  - Address / Parms
- 5.14 Auto Eject
- 5.15 Decurler

Figure 1-35. Operator Panel Menu

Note For a detailed explanation of the operator panel commands, refer to the *HP 5000 Fan Fold Printers Operator's Manual*, HP part number C2750-96110.

Test Functions Mode (Menu 4.6)

Test code numbers

No. 0101 Meaning: Configuration Byte 1 (basic unit)
No. 0102 Meaning: Configuration Byte 2 (character generator)
No. 0103 Meaning: Configuration Byte 3 (fuser station)
No. 0104 Meaning: Configuration Byte 4 (printing system)
No. 0105 Meaning: Configuration Byte 5 (controller options)
No. 0106 Meaning: Vertical Offset
No. 0107 Meaning: Charge Value (F100 = 72; F135 = 66)
No. 0108 Meaning: Background Value
No. 0109 Meaning: Toner Density adjust
No. 0110 Meaning: Reference Drum
No. 0111 Meaning: Tonermark Sensor Current adjust
No. 0112 Meaning: Tonermark Sensor Horizontal adjust
No. 0113 Meaning: Tonermark Horizontal shift
No. 0114 Meaning: Not valid for HP controller (00H)
No. 0115 Meaning: Transfer corotron voltage (F100 = 2E; F135 = 60)
No. 0118 Meaning: Submodule Print Sample (Default = 00)

Test 0101 Configuration Byte 1 (Option Select Byte).

Left Character				Right Character			
8-7	4-6	2-5	1-4	8-3	4-2	2-1	1-0
VACSYS	GrnLED	Non HP	Non HP	Non HP	Non HP	AdevRDY	Non HP
1	1	0	0	0	0	0/1	0

VACSYS	Vacuum system control
0	Not installed
1	Installed (HP configuration)
GrnLED	Green LED
0	Not installed
1	Installed (HP configuration)
AdevRDY	Set printer Ready from pre- or post-processing device
0	Disable
1	Enable

Test 0102 Configuration Byte 2 (Character Generator Type).

Left Character				Right Character			
8-7	4-6	2-5	1-4	8-3	4-2	2-1	1-0
Non-HP	Non-HP	Non-HP	Res2	Res1	Res0	LID1	LID0
0	0	0	0	0	0/1	0/1	0/1

Res2	Res1	Res0	Print Resolution
0	0	0	240 DPI
0	0	1	300 DPI - HP (large dot)
1	0	1	300 DPI - SNI (small dot)

LID1	LID0	LED Array Type
0	0	17-in LED array with carriage and selfoc lens cover
0	1	15-in LED array without carriage and selfoc lens cover
1	0	17-in LED array with carriage; without selfoc lens cover
1	1	17-in LED array without carriage and selfoc lens cover

Test 0103 Configuration Byte 3 (Fusing Station Option Byte).

Left Character				Right Character			
8-7	4-6	2-5	1-4	8-3	4-2	2-1	1-0
Non-HP	Non-HP	Non-HP	Non-HP	Non-HP	Non-HP	Heat/down	STKSW
0	0	0	0	0	0	0/1	0

Heat/down	Lower fuser temperature after 30 minutes in Standby Mode
0	Disable
1	Enable
STKSW	Slewable stacker bottom (not currently available for HP)
0	Not installed
1	Installed

Test 0104 Configuration Byte 3 (Printing Syatem Identification).

Left Character				Right Character			
8-7	4-6	2-5	1-4	8-3	4-2	2-1	1-0
IHCL	Non-HP	D91/D125	Non-HP	Non-HP	FAC2	FAC1	FAC0
0/1	0	0/1	0	0	0	0	0/1

IHCL	Automatic clean stop after 6000 ft
0	Enable
1	Disable
D91/D125	Activate error monitoring for D125
0	D91 installed
1	D125 installed

FAC2	FAC1	FAC0	Printing Type
0	0	0	F135
0	0	1	F100

Test 0105 Configuration Byte 5 (Controller Options).

Left Character				Right Character			
8-7	4-6	2-5	1-4	8-3	4-2	2-1	1-0
Non-HP	Non-HP	Non-HP	Non-HP	Non-HP	Non-HP	Non-HP	2NDFD
0	0	0	0	0	0	0	1

2NDFD	Number of floppy disk drives installed in printer
0	1 floppy drive installed
1	2 floppy drives installed (HP configuration)

Test 0106 Toner Mark Vertical Offset - With this test you can adjust the vertical position of the toner mark (Routine 41D2).

Test 0107 Charge Value - With this test you can determine the nominal value for the charge voltage. Defaults:

- F100 = 72H
- F135 = 66H

Test 0108 Background Value.

- Can only be read.
- Allows to read UBACK.

Test 0109 Toner Density Adjust.

- Can only be read.
- With this test you can read the control threshold.
- This drum type-dependent value is calculated and automatically written into NV-RAM after every power-on.

Test 0110 Reference Drum.

- Can only be read.
- It contains the drum type with which the print contrast has been adjusted (reference drum type, R 41E2).

Test 0111 Toner Mark Sensor Current Adjust.

- Can be read and written to.
- It contains the LED current for the toner mark sensor (I-LED).
- Should only be used for basic adjustment of print contrast (R 41E2).

Test 0112 Toner Mark Sensor Horizontal Adjust.

- Can be read and written to.
- With this adjustment, the basic unit can be switched to two special modes. Enter 01H: This allows you to adjust the horizontal position of the toner mark sensor. Read size of toner mark pulses in the second row of the operator panel (R 41C2). Enter 10H: This allows you to adjust the horizontal position of the toner mark sensor and a one-time input of the reference drum type in menu item 1.11 DRUM TYPE. If you want to change the reference drum type again, this value must be reentered. These special modes are reset when the printer is switched off.

Test 0113 Toner Mark Horizontal Shift. With this value you can adjust the horizontal position of the toner mark (R 41D1).

Test 0114 Not Valid for HP Controller (00H).

Test 0115 Transfer Corotron Voltage. The transfer voltage is set according to the specific printer.

- F100 = 2E.
- F135 = 60.

Test 0118 Submodule Print Sample.

- Default = 00H.
- Continuous = 02H.
- Start Stop = 03H.

Supported Systems

HP 3000 System Support

- All series 9XX systems
- MPE/iX 4.0 or later
- Dedicated SCSI-2 adapter
- Maximum distance, 100 meters (with SCSI extender)

HP 3000 Configuration Procedure (CIO)

1. Enter the sysgen routine.

```
:sysgen
```

2. Enter the I/O command.

```
sysgen>io
```

3. Add the path for the CIO SCSI device adapter card.

```
io>ap 4.6:id=HP27251A
```

4. Add the psuedo device path (assuming a printer SCSI address of "3").

```
io>ap 4.6.3;id=PSUEDO
```

5. Use the Add Device command to add the printer.

```
io>ad 18;id=(HP5000/F100 or
F135XP);path=4.6.3.0;devname=ABC;class=F100
```

6. Confirm proper configuration.

```
io>lp 4.6
PATH:      4.6                    LDEV:
  ID:      HP27251A               TYPE:   DA
PMGR:      CIO_SCSI_DAM        PMGRPRI:   6
LMGR:                           MAXIOS:   0

io>lp 4.6.3
PATH:      4.6.3                  LDEV:
  ID:      PSEUDO                 TYPE:   DA
PMGR:      TRANSPARENT_MGR     PMGRPRI:   6
LMGR:                           MAXIOS:   0

io>lp 4.6.3.0
PATH:      4.6.3                     LDEV:   18
  ID:      HP5000/F100               TYPE:   PP
PMGR:      SCSI_PRINTER_DM        PMGRPRI:   10
LMGR:      LOGICAL_DEVICE_MANGER   MAXIOS:   0

io>ld 18
LDEV:      18 DEVNAME:ABC  OUTDEV:   0        MODE:   OS
  ID:      HP5000/F100      RSIZE:   66    DEVTYPE:   PP
PATH:      4.6.3.0        MPETYPE:   32 MPESUBTYPE:   6
CLASS:     F100
```

7. Hold and exit from I/O, keep and exit from sysgen, shutdown and reboot.
8. Set SCSI address on printer and cycle printer power.

Note

- This configuration information is subject to change depending on the operating system revision. Always refer to the *System Configuration Manual*.
- Manual—*System Startup, Configuration and Shutdown Reference Manual, 900 Series HP 3000 Systems*, HP part number 32650-90042.
- Arbituary address values, device names, and device classes were selected for illustration purposes; these will vary depending on the actual configuration and customer preferences.

HP 3000 Configuration Procedure (NIO)

1. Enter the sysgen routine.

```
:sysgen
```

2. Enter the I/O command.

```
sysgen>io
```

3. Add the path for the NIO SCSI device adapter card.

```
io>ap 44;id=HP28642A-SCSI
```

4. Add the psuedo device path (assuming a printer SCSI address of "3").

```
io>ap 44.3;id=PSUEDO
```

5. Use the Add Device command to add the printer.

```
io>ad 18;id=(HP5000/F100 or
F135XP);path=44.3.0;devname=ABC;class=F100
```

6. Confirm proper configuration.

```
io>lp 44
PATH:      44                LDEV:
  ID:      HP28642-SCSI      TYPE:  DA
PMGR:      SCSI_DAM       PMGRPRI:  6
LMGR:                      MAXIOS:  0

io>lp 44.3
PATH:      44.3              LDEV:
  ID:      PSEUDO            TYPE:  DA
PMGR:      TRANSPARENT_MGR PMGRPRI:  6
LMGR:                      MAXIOS:  0

io>ld 18
LDEV:      18          DEVNAME: ABC      OUTDEV: 0  MODE: OS
  ID:      HP5000/F100   RSIZE: 66      DEVTYPE: PP
PATH:      44.3.0      MPETYPE: 32   MPESUBTYPE: 6
CLASS:     FASTPP F100
```

7. Hold and exit from I/O, keep and exit from sysgen, shutdown and reboot.
8. Set SCSI address on printer and cycle printer power.

Note

- This configuration information is subject to change depending on the operating system revision. Always refer to the *System Configuration Manual*.
- Manual—*System Startup, Configuration and Shutdown Reference Manual, 900 Series HP 3000 Systems*, HP part number 32650-90042.
- Arbituary address values, device names, and device classes were selected for illustration purposes; these will vary depending on the actual configuration and customer preferences.

HP 9000 System Support

- All series 8XX systems
- HP-UX 9.0 or later
- Dedicated SCSI-2 adapter
- Maximum distance, 100 meters (with SCSI extender)

HP 9000 Configuration

Separate SCSI interface required.

1. Add "lpr3" to DFILE.
2. Recreate KERNEL.
   - Printer setup on CIO computers:

`Interface card`	`HP 27147-60002 SCSI`
`Driver required`	`lpr3,scsi2`
`Character Mode major number`	`26`
`Minor number format`	`See Appendix A`

   - Printer setup on HP-PB computers:

`Interface card`	`HP 28655A HP-PB SCSI/Parallel`
`Driver required`	`lpr3,scsi2`
`Character Mode major number`	`26`
`Minor number format`	`See Appendix A`

Note

Adding a printer to the spooler must be done manually; there is no System Administration (SAM) support for HP 5000 fanfold printers on HP-UX 9.0.

- This configuration information is subject to change depending on the operating system revision. Always refer to the *System Configuration Manual*.
- Manual—*Installing Peripherals, HP 9000 Series 800 Systems*, HP part number B3108-90004.
- Manual—*System Administration Tasks, HP 9000 Series 800 Systems*, HP part number B3108-90005.

Deinstallation and Return Procedure

Removing the Consumables

With power still supplied to the printer, do the following:

1. Print a current copy of submodule printing. Mark copies with date and page count. Include in print *Support Log* (if applicable).
2. Purge developer mixture from developer station. Remove toner box from on top of assembly and vacuum out toner. Reinstall toner box on unit and install shipping cardboard over developer rollers.
3. Retract corona wires back into cartridges.
4. Tighten screw under paper conveyor and remove 2 pins.
5. Raise all 4 leveling feet completely up so printer can be rolled.
6. Lower stacker assembly down after previous step is completed.

Switch OFF printer power, and do the following:

1. Remove PC drum.
2. Remove pin from PC drum door. Tape pin to inside of door.
3. Remove toner bottle from printer. Vacuum toner suction tube and area around toner feed assembly.
4. Empty developer bottle and return to waste canister.
5. Disconnect power cable from main receptacle. Remove interface cables.
6. Remove floppy disks and insert dummy floppy disks. Latch drives closed.

Cleaning the Printer

Clean the printer with a vacuum and brush, making sure to clean PCD area, paper transport, toner supply, and developer waste areas.

Transport Locks

Install the following transport locks:

- Stacker
- Exhaust hood
- Swing arm
- PCD door
- Controller
- Toner box
- Catch box
- Toner bottle
- Developer station
- Vacuum assembly lock
- Cardcage locks

Refer to *Transport Locks*, earlier in this section, for the locations of the transport locks.

Caution

When installing the transport lock on the developer station DO NOT completely tighten the three screws "2" (Figure 1-6); they should be HAND TIGHTENED only. IF THE SCREWS ARE COMPLETELY TIGHTENED, THE ASSEMBLY WILL BE DAMAGED.

Documentation

1. Place print samples, manuals, floppy disks, and drum in their respective packing boxes.
2. Be sure to include any upgrade kits not yet installed with the printer.

Transport

Make arrangements with the shipping company.

2

Maintenance and Repair Routines

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Main Module

Routine 31

31A. Operator Panel

Caution Observe all ESD precautions.

31A1. Operator Panel Removal. Estimated time to complete this procedure: 15 minutes.

a. Power down printer at operator panel; set main circuit breaker OFF.

b. Open door "T1" at front side. Lift up and hold lever "L1" behind controller front panel "C"; then pull the controller assembly out from the printer (refer to Figure 2-1).

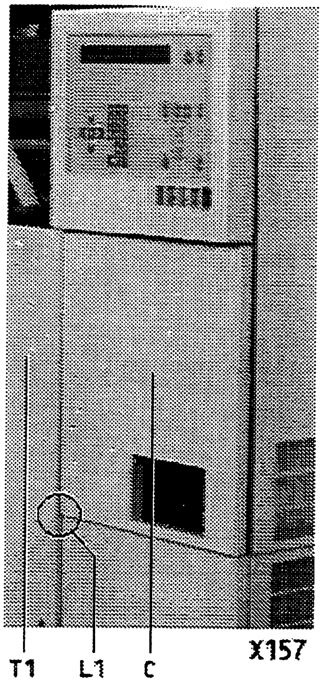


Figure 2-1. Controller Assembly

c. Loosen the 4-Tx20 screws "1" (accessible behind operator panel) and remove operator panel (refer to Figure 2-2).

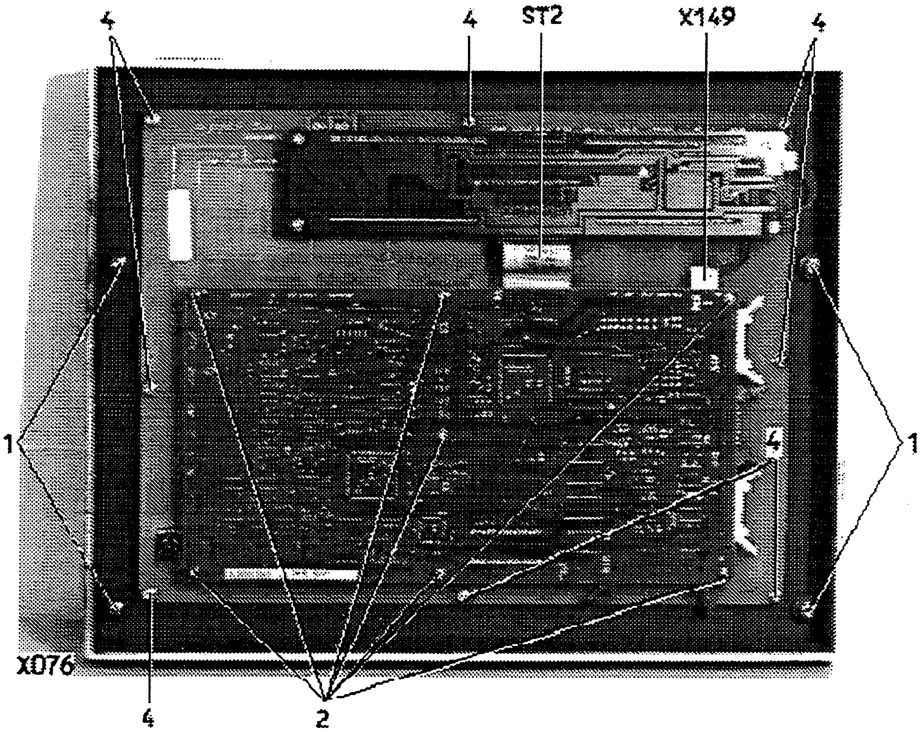


Figure 2-2. Operator Panel Removal

d. At operator panel inner side, unplug connectors X144, X145, X146, X147, and X148. Disconnect cable from ON/OFF switch.

e. When replacing the whole unit, the NV-RAM (refer to Figure 2-3) from the original operator panel PC board OMP** must be installed in the replacement PC board. Do Routine 31B1.

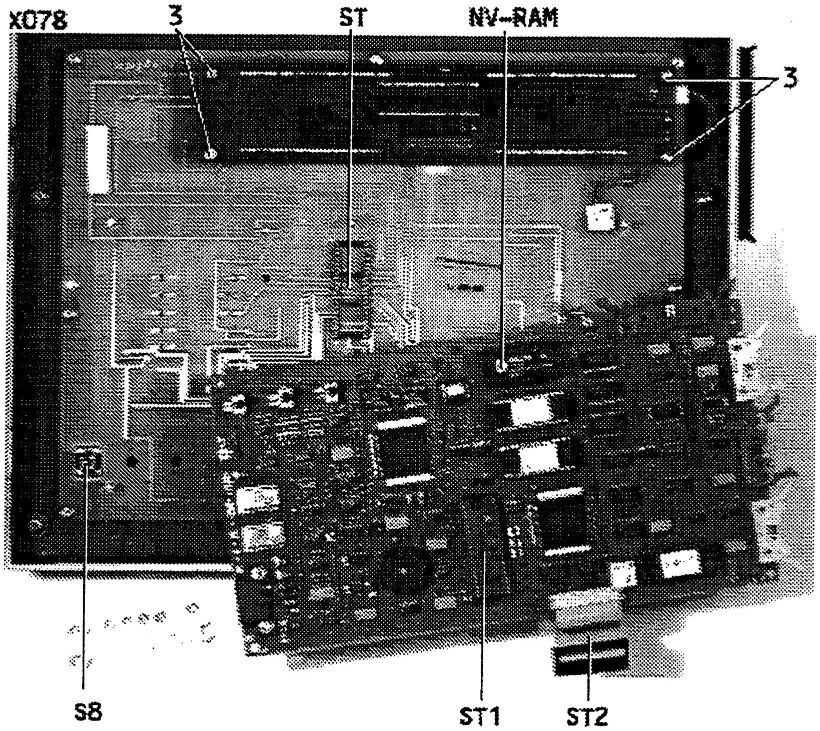


Figure 2-3. OMP and Display Panel**

f. Reinstall in reverse order.

31B. Operator Panel PCA OMP**

31B1. Operator Panel Replacement. Estimated time to complete this procedure: 30 minutes.

a. Remove the operator panel (refer to Routine 31A1).

b. Disconnect plugs X149 and "ST2" (refer to Figure 2-2).

c. Remove the 7-5.5 mm nuts "2" and washers (refer to Figure 2-2 and Figure 2-3).

d. Cautiously lift PC board OMP** from base "ST" (refer to Figure 2-3).

e. Remove the NV-RAM from the original operator panel PC board OMP** and install it in the replacement PC board (refer to Figure 2-3).

Caution When inserting the NV-RAM, take care not to damage any connector pins.

---

f. Reinstall in reverse order.

31C. Display PCA

31C1. Display PCA Replacement. Estimated time to complete this procedure: 30 minutes.

a. Remove the operator panel (refer to Routine 31A1).
b. Disconnect plugs X149 and "ST2" (refer to Figure 2-2).
c. Remove the 4-5.5 mm nuts "3" (refer to Figure 2-3).
d. Replace display PC board.
e. Reinstall in reverse order.

31D. Keyboard

31D1. Keyboard Replacement. Estimated time to complete this procedure: 30 minutes.

a. Remove the operator panel (refer to Routine 31A1).
b. Disconnect wires from ON/OFF switch "S8" and remove switch (refer to Figure 2-3).
c. Remove operator panel PC board OMP** (refer to Routine 31B1).
d. Remove operator panel display (refer to Routine 31C1).
e. Remove the 8-Tx10 screws "4" (refer to Figure 2-2).
f. Replace the keyboard.
g. Reinstall in reverse order.

PC Drum Area

Routine 41

41A. PC Drum

41A1. PC Drum Removal and Replacement. Estimated time to complete this procedure: 10 minutes.

a. Open the front door.

b. Open the PCD cover door by pulling out on handle "G" until it stops. While pushing in on the PC door, press lock lever "V" to the right. Swing the door all the way open (refer to Figure 2-4).

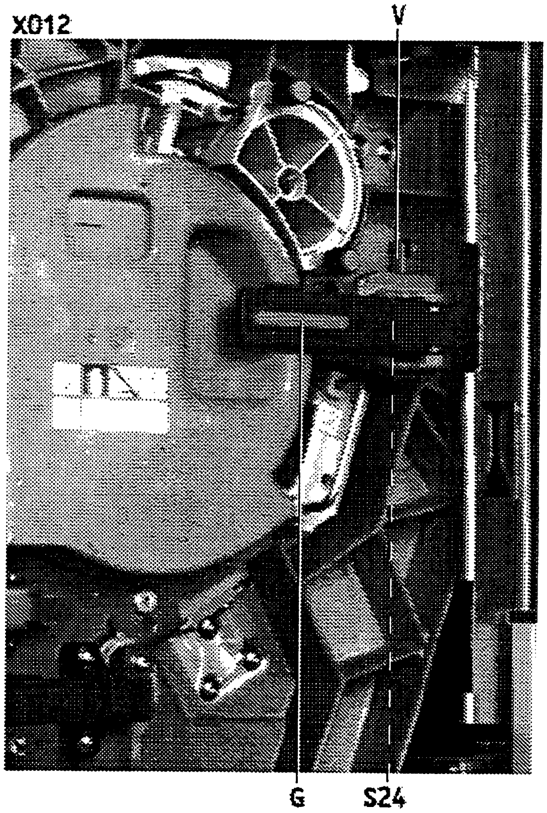


Figure 2-4. PC Drum Area

c. Remove the PCD flange by turning the knob counterclockwise until the flange can be removed from the shaft.

Caution The drum is easily scratched. Use caution when handling drum to avoid damage.

d. Grab the handles inside the drum and carefully pull the drum straight out to remove.

e. If an empty drum box is available, use it to store the drum, in order to protect it from scratches and strong light. Otherwise, place the drum in a safe place.

f. Clean the PC drum if necessary (refer to Routine 41A2 or 41A3).

g. Reinstall in reverse order.

41A2. Dry Cleaning of the PC Drum.

Use this procedure when:

- There are easy-to-remove spots on the drum.
- There is a toner film on the drum.
- There are single "comma" type spots in print quality.

a. Remove the PC drum (refer to Routine 41A1).

b. Clean the surface of the PC drum with dry, lint-free material.

c. Reinstall PC drum immediately after cleaning (refer to Routine 41A1).

41A3. Wet Cleaning of the PC Drum.

Use this procedure when:

- There are difficult-to-remove spots on the drum, such as compacted toner.

a. Remove the PC drum.

b. Wet a white lint-free wipe with isopropyl 91% alcohol.

c. Applying light pressure, clean the surface of the drum using circular motions.

d. Reinstall PC drum after cleaning.

Note After the above routine is performed, it may be necessary for the PC drum to stabilize after it is installed back in the printer. Either printing 1000 feet, or allowing 24 hours to pass will be sufficient to stabilize most drums.

41B. PC Drum Drive Assembly

41B1. Replacement of PCD Drive Rotary Sensor. Estimated time to complete this procedure: 30 minutes.

a. Power down printer at operator panel; set main circuit breaker OFF.

b. Open rear doors of printer; remove panel cover above developer station (4 mm Allen).

c. Unscrew plug X66 and remove (refer to Figure 2-5).

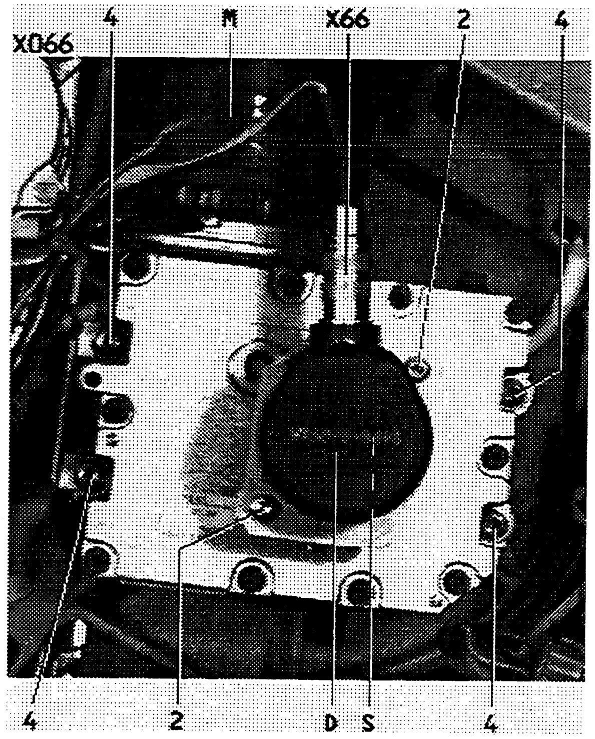


Figure 2-5. PCD Drive Rotary Sensor

Note There are 4-Tx6 setscrews (2 at each end), securing the spring coupling between the PCD drive rotary sensor and the motor gear box.

d. Rotate motor "M" so that the 2 of the 4-Tx6 setscrews located on the spring coupling (between motor gear box and PCD Drive Rotary Sensor "D") are accessible (refer to Figure 2-5). Loosen the Tx6 setscrew closest to PCD Drive Rotary Sensor; rotate motor "M" more to expose the second Tx6 setscrew, and loosen it.

e. Remove the 2-Tx25 screws "2" to remove the old PCD Drive Rotary Sensor "D" (refer to Figure 2-5).

f. Install the replacement PCD Drive Rotary Sensor "D" in reverse order.

41B2. Replacement of PC Drum Drive Motor. Estimated time to complete this procedure: 45 minutes.

Note This procedure should be done with the PCD cover door closed.

---

a. Power down printer at operator panel; set main circuit breaker to OFF.

b. Open rear doors of printer; remove panel cover above developer station (4 mm Allen).

c. Remove the PCD Drive Rotary Sensor (refer to Routine 41B1).

d. Disconnect plug X50, located to the left of the incremental clock generator. Cut the tie-wraps securing the cable to the bracket.

e. Remove the 4-Tx30 screws "4" and pull out the old PCD drive motor (refer to Figure 2-5).

f. Clean and lubricate both the PCD drive shaft and the gear motor slot using general lubricant.

g. Install the replacement PCD drive motor in reverse order.

41C. Toner Mark Sensor

41C1. Toner Mark Sensor Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Remove the PC drum (refer to Routine 41A1).

b. Slide out developer station from rear of printer.

c. Remove screw "1" (Tx10) that holds the sensor PC board TMS** in place (refer to Figure 2-6). The drum drive collar may need to be rotated to access the sensor PCA.

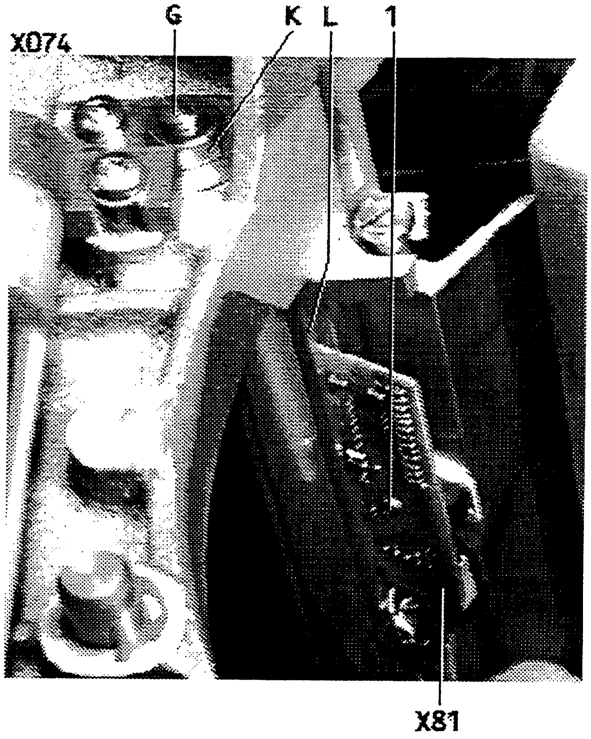


Figure 2-6. Toner Mark Sensor

d. Disconnect plug X81 and remove the old sensor PC board TMS** (refer to Figure 2-6).

e. Install the replacement sensor PC board TMS** in reverse order.

f. Do the horizontal adjustment Routine 41C2.

41C2. Toner Mark Sensor Adjustment.

Caution Continued printing with an incorrectly positioned sensor may cause too much background.

---

a. Verify correct horizontal position of toner mark outlined in Routine 41D1.

b. Physically clean toner mark sensor with lint-free wipe.

c. Power ON printer; load continuous sub-module print (Menu 4.6, Test 118=02H).

d. Load test code 112, TM SENS HORIZ ADJ (Menu 4.6).

e. Input value 01H. This input sets the basic unit into a special mode that displays on the front panel, the amplitude of the toner mark pulse. Powering OFF the printer automatically ends this mode.

f. Open the front door of the printer. Take care to protect the PC drum from exposure to strong light.

g. Loosen locknut "K" (13-mm wrench) (refer to Figure 2-6).

h. Start submodule printing and read toner mark pulse amplitude on front panel.

i. Adjust screw "G" (refer to Figure 2-6) as follows:

- Clockwise until value increases over 100.
- Counterclockwise until value starts to increase after displaying minimum value.
- Clockwise until minimum is attained.

Note Minimum value attained will vary depending on contrast setting.

---

j. Tighten locknut "K" on screw "G". Be sure that lowest displayed value on panel has not changed.

k. Power OFF printer to reset previous modes.

l. Verify print density with Routine 41E1.

41D. Toner Mark Position

41D1. Toner Mark Horizontal Position Adjustment.

a. Print 10 pages in submodule print mode (Menu 4.6, test 118=02H).

b. Measure the horizontal position of the toner mark on 3 consecutive pages and calculate the average position. The right edge of the toner mark must be 6.35 mm +0.0mm/-0.2mm (0.25 in +0.0 in/-0.008 in) from the center of the tractor holes (refer to Figure 2-7), item "A".

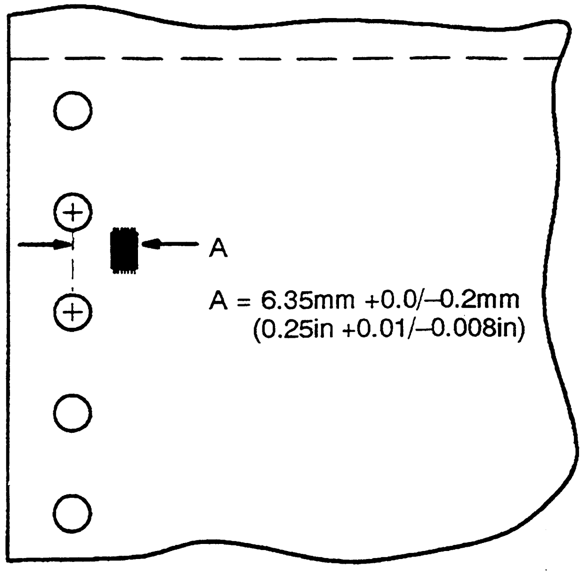


Figure 2-7. Toner Mark Horizontal Position

c. The toner mark horizontal position can be adjusted by changing the hex value stored in test code function 113 "TM HORIZONTAL SHIFT", front panel (Menu 4.6). If measurement "A" is below allowable tolerance, increase the stored hex value; if measurement "A" is above the allowable tolerance, decrease the hex value.

Note Changing the value by 01H moves the toner mark by approximately 0.1mm (0.004 in).

d. Cycle printer power to activate new value stored in NVRAM.

e. Print 10 pages in submodule print mode.

f. Measure new horizontal position. Repeat procedure if more adjustment is necessary.

Note If the horizontal position of the tone mark is changed, it will be necessary to adjust the position of the toner mark sensor (refer to Routine 41C2) and verify print density (refer to Routine 41E2).

41D2. Toner Mark Vertical Position Adjustment.

Tools required:

- Metric ruler

a. Print 10 pages in submodule print mode (Menu 4.6, test 118=02H).

b. Measure the vertical position of the toner mark on 3 consecutive pages and calculate the average position. The lower edge of the toner mark must be 6.35 mm +0.0mm/- 0.2mm (0.25 in +0.0 in/- 0.008 in) from the center of the tractor holes (refer to Figure 2-8). ADVF and ADVR can be used to move the toner mark, in relation to the tractor hole, at 0.16 in (4.1 mm) increments. Print 10 pages, after forwarding or reversing paper, and measure position again.

Note

If ADVF or ADVR was used, and the toner mark was able to be set to the correct specification, the rest of this procedure does not apply. However, you will have to verify the forms alignment scale using Routine 52E1. If the toner mark can not be placed in the exact position, continue with the next step.

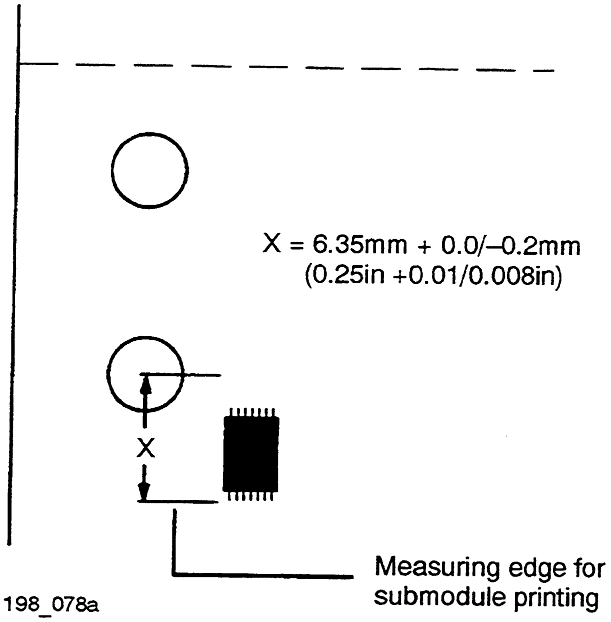


Figure 2-8. Toner Mark Vertical Position

Table 2-1. "X" Value Hexadecimal Conversion Table

X	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
2.0		A7	A3	9F	9B	97	93	8F	8B	87
3.0	83	7F	7B	78	74	70	6C	68	64	60
4.0	5C	58	54	50	4C	49	45	41	3D	39
5.0	35	31	2D	29	25	21	1D	1A	16	12
6.0	0E	0A	06	03						

c. Load test code 106 VERTICAL OFFSET (Menu 4.6).

d. Input value 00H. Cycle printer power to activate new value stored in NVRAM. This input sets the toner mark to its base position.

e. Print 10 pages of submodule print.

f. Measure the lower edge of the toner mark. It must be between 2.1 mm and 6.35 mm (0.08 in and 0.25 in) beneath the center of the tractor hole. If not positioned within this area, change the paper position with ADVF or ADVR. Repeat procedure starting at "E". Once within this range, proceed with next step.

g. Measure dimension "X" (refer to Figure 2-8). Convert this value using Table 2-1; enter this hex value into test code 106. For example, if "X" equals 4.8 mm, enter 3D. Cycle printer power to activate new value stored in NVRAM.

h. Print 10 pages and measure new position of toner mark. If new position is still not correct, convert new dimension for "X" using Table 2-1). If the new position was greater than 6.35 mm then subtract "X" from hex value stored in test 106. If the new position was less than 6.35mm, add to hex value stored in test 106. Cycle printer power to activate new value. Repeat step as necessary until toner mark is at its correct position.

Note

If ADVF or ADVR was needed in step "F", it will be necessary to verify the forms alignment scale using Routine 52E1.

41E. Print Density

41E1. Print Density Measurement.

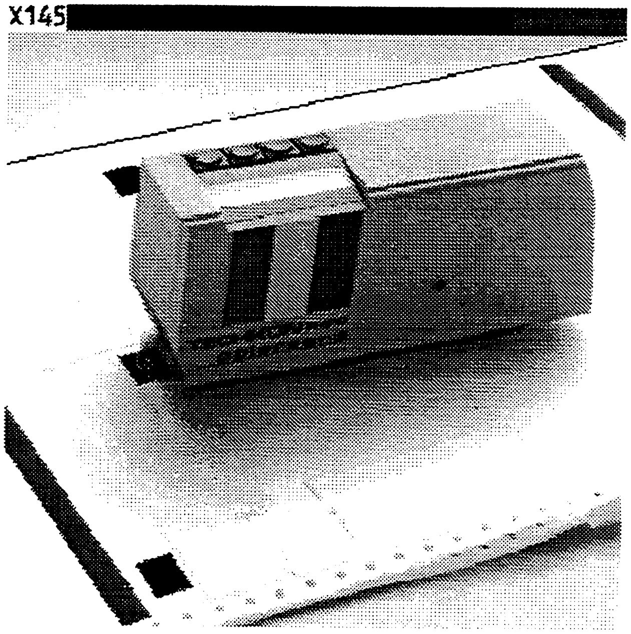


Figure 2-9. Techkon 412 Measuring Device

Tools required:

- Densitometer model TECHKON-R412 (Refer to the Parts Catalog for number)
- 18-28 pound white paper

THEORY NOTES: The developer/toner mixture is controlled automatically by the printer reading parameters stored in memory (i.e. drum type, contrast, I-TONMARK) and using sensor PCAs. If print quality problems are occurring, such as background, it is important that the developer mixture be given the proper time it needs to allow it to stabilize if any of these following changes have occurred:

- New developer mixture takes approximately 5,000 feet of printing before it stabilizes. If the developer mixture was just recently replaced in the developer station, printing a minimum of 5,000 sheets will allow the new mixture to stabilize.
- If a front panel parameter (such as drum type, contrast, etc.) was modified, printing 500 sheets in Submodule Print Mode will allow enough time for the developer mixture to stabilize.
- If the drum was removed or exposed to light, it is important that it has time to stabilize. Either printing 1000 feet, or allowing 24 hours (drum installed) to pass will allow the drum to stabilize. It is also important to keep in mind that paper quality and environmental conditions greatly effect the quality of print. Paper that meets the specifications outlined in the *Model HP 5000 Fan Fold Printers Paper Specifications*, HP part number C2750-96111, and an operating environment that meets HP's guidelines are two important parameters that should be met before attempting to adjust the printer.

Note

Before performing print density measurement, it is important that the developer mixture being tested has printed at least 5,000 feet. This allows sufficient time for the new mixture to stabilize. If background or other print quality conditions are appearing with less than 5,000 feet of use, verify that the toner mark sensor is clean and correctly adjusted. Also, verify that the drum type in use is the same as the front panel (Menu 1.11). If the mixture has less than 5,000 feet of use, or the drum type needs to be changed, the developer mixture will need to be stabilized to the new parameters before any measurements can be taken.

a. Clean toner mark sensor with lint-free wipe.

b. Verify toner mark vertical position (refer to Routine 41D2).

c. Verify toner mark sensor position (refer to Routine 41C2).

d. Check if the drum type displayed in Menu 1.11 is the same as the drum in use. The drum type is identified by a label on the inside of the drum, and on the outside of the shipping box. Enter the drum type in use in Menu 1.11, if it is different from what is displayed. Cycle printer power for the new value to become active.

e. Verify print contrast is set to "NORMAL" (Menu 1.9).

f. Using 18-28 pound paper, enable submodule printing (Menu 4.6) and print 1000 pages. Use the page counter on the front panel (Menu 2.1) to keep a record of printed pages.

g. Verify calibration of Techkon density meter using the calibration card enclosed with the meter.

Note

It is very important that the calibration of the TECHKON-412 be verified, using its calibration card, before proceeding. Unqualified meter readings will result in improper printer settings and poor print quailty.

h. Calibrate the Techkon density meter on the top sheet of an unprinted stack of paper that is approximately 1/4 inch (6.5 mm) thick. The following measurements should be taken with the printed paper placed over this stack. This is to ensure that the density meter does not "read" an incorrect value as the result of the paper's opacity. Measure the last 10 pages of submodule print (refer to Figure 2-10) using the following procedure:

- Measure all 10 of the left-hand areas labeled "A" (refer toFigure 2-10). Calculate the average value.
- Measure all 10 of the center areas labeled "B" (refer to Figure 2-10). Calculate the average value.
- Measure all 10 of the right-hand areas labeled "C" (refer to Figure 2-10). Calculate the average value.
- Calculate the overall total average value of the left, center, and right averages, to determine the average contrast of the last 10 pages. The average contrast value should be 1.7 +/- 0.1. If this value is not correct, but is in the range of 1.3 to 2.1, do the Print Density Adjustment described in Routine 41E2.

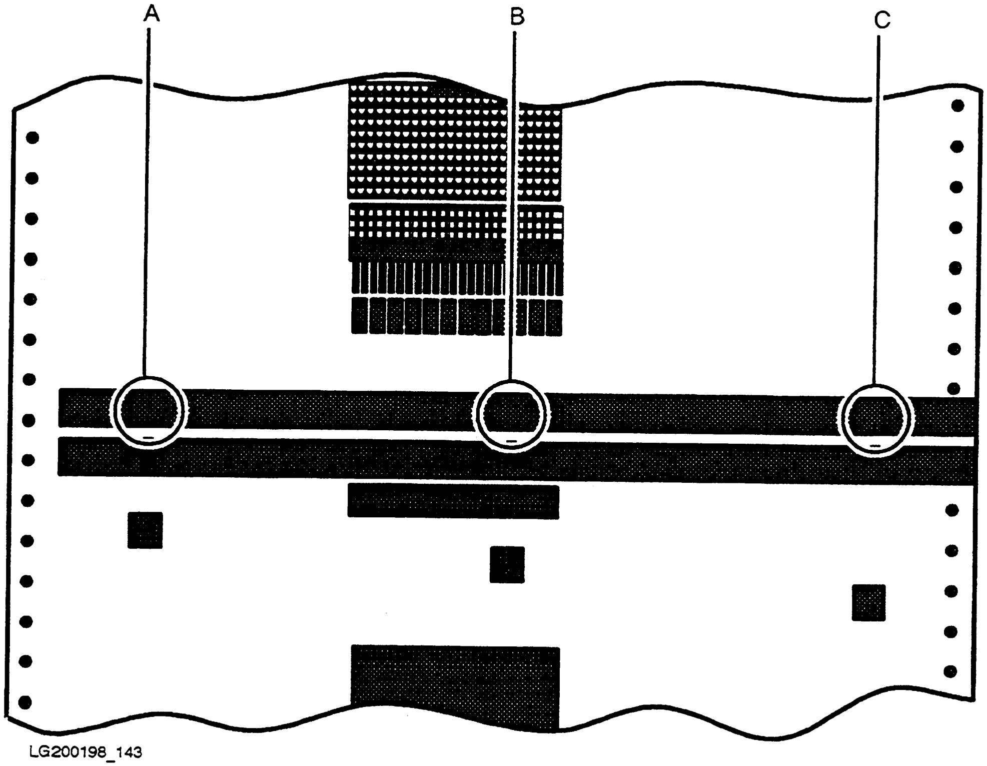


Figure 2-10. Print Density Measurement Locations

Note If the overall average is outside the range of 1.3 to 2.1, check that the prerequisites mentioned in steps A through D above are correct and that the toner mark sensor is not defective or incorrectly positioned per Routine 41C2.

41E2. Print Density Adjustment.

Note

Do Routine 41E1 to verify print density measurement before proceeding with adjustment.

---

a. Enable submodule printing (Menu 4.6) and print 500 pages. Use the page counter on the front panel (Menu 2.1) to keep record of the printed pages.

b. Calculate the average density of the last 10 pages printed (refer to Routine 41E1, procedure G). Acceptable print density should measure 1.7 +/- 0.1. If not, load test function code 111 and read the value for I-TONMARK.

c. Using Table 2-2, calculate the new I-TONMARK value. Enter new value into test function 111. For example:

```
Measured average print density: 1.4
Value I-TONMARK in test code 111: 33H
New I-TONMARK value: 3BH
```

Table 2-2. Print Density I-Tonmark Values

Measured Print Density	Adjusted Value I-Tonmark in HEX											
	1A	**27**	**33**	**40**	**4D**	**5A**	**67**	**74**	**80**	**8D**	**9A**	**A7**
	New Value I-Tonmark in HEX											
≤ 1.3	20	30	40	50	60	70	80	90	A0	-	-	-
1.4	1E	2C	3B	4A	59	68	77	86	95	A5	-	-
1.5	1C	2A	38	47	55	63	71	7F	8D	9B	A9	-
1.6	1B	29	36	43	50	5E	6C	7A	87	94	A1	AE
1.7	1A	27	34	40	4D	5A	67	74	80	8D	9A	A7
1.8	18	25	31	3D	49	57	61	6E	79	86	92	9E
1.9	17	23	2E	3A	45	51	5C	68	73	7F	8A	96
2.0	16	21	2C	37	41	4C	57	62	6D	78	83	8E
≥ 2.1	14	1D	27	30	3A	43	4D	57	60	6A	73	7D

d. Repeat routine starting at "A" until average density is 1.7 +/- 0.1.

41E3. Print Density Reference Value Adjustment.

Note This routine runs a calibration procedure that sets the printer base reference point for the drum. It should only be used if all attempts to gather lost NVRAM information have been exhausted. Please contact Response Center product support before proceeding.

Attempting this routine without proper knowledge will result in future print quality problems.

Tools required:

- PC drum type 4 or 5
- Densitometer model TECHKON-R412
- 18-28 pound white paper

a. Clean toner mark sensor with lint free wipe.

b. Install drum type 4 or 5 into printer. Drum type must be either 4 or 5 only.

c. Verify toner mark sensor position (refer to Routine 41C2).

d. Verify toner mark vertical position (refer to Routine 41D2).

e. Verify print contrast is set to NORMAL (Menu 1.9).

f. Load test function code 112 and enter value 10H. This procedure puts the unit into a special calibration mode that allows it to change the reference drum type and sets I-TONMARK to a default value of 33H.

g. Enter the new drum type via Menu 1.11.

h. Enable submodule printing (Menu 4.6) and print 500 pages. Use the page counter on the front panel (Menu 2.1) to keep a record of the pages printed.

i. Calculate the average density of the last 10 pages printed (refer to Routine 41E1, procedure G). Acceptable print density should measure 1.7 +/-0.1. If not, load test function code 111 and read the value for I-TONMARK.

j. Using Table 2-2, calculate the new I-TONMARK value. Enter new value into test function 111. For example:

```
Measured average print density: 1.4
Value I-TONMARK in test code 111: 33H
New I-TONMARK value: 3BH
```

k. Repeat routine starting at Step H until the average density is 1.7 +/-0.1.

l. Power OFF printer to end special calibration mode.

m. Install original drum and power ON printer.

n. Update printer drum type (Menu 1.11).

o. Print 300 pages of submodule print and verify print quality.

p. Using HELPU, create a backup of NVRAM.

41F. TREK Probe

41F1. TREK Probe Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Power down printer at operator panel; set main circuit breaker to OFF.

b. Remove the PC drum (refer to Routine 41A1).

c. Remove the 4-Tx25 screws that hold the right side cover of the paper input area.

d. Remove the 4-Tx25 screws that hold the cover for the developer lifter gear assembly (front of printer under PC drum door).

e. Remove the 2-Tx10 screws "S" that hold the TREK probe in place (refer to Figure 2-11).

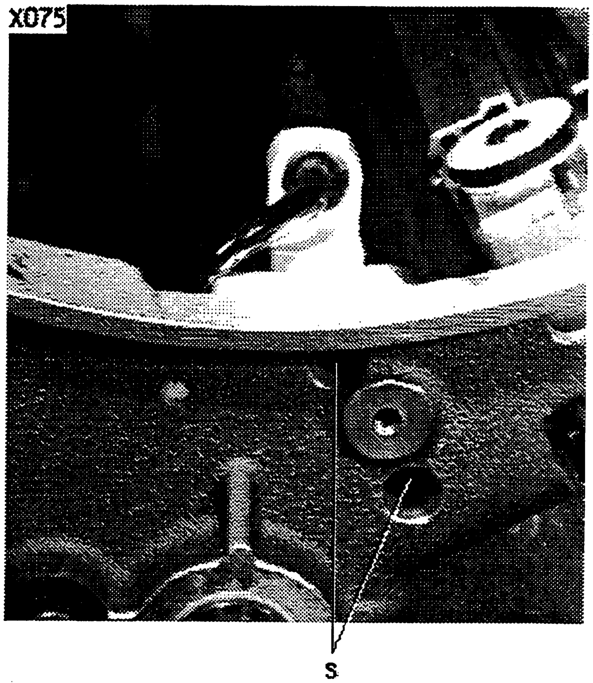


Figure 2-11. TREK Probe Removal and Replacement

f. Open the rear panel door (4 mm Allen) for submodule 2 to access the TREK PC board.

g. Slide out developer station from rear of printer.

h. Disconnect the TREK probe connector from the TREK PC board Figure 2-12). Remove the tie-wraps for the TREK probe cable.

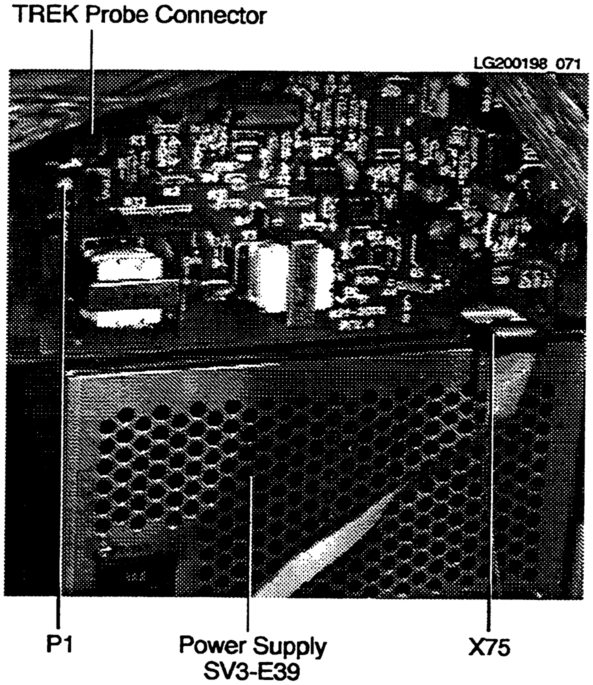

TREK Probe Connector
LG200198 071
P1
Power Supply
SV3-E39
X75

Figure 2-12. TREK Probe Adjustment

Note Remove the protective cover of the replacement TREK probe AFTER installation to avoid damage to the probe.

i. Install the replacement probe in the reverse removal order.

j. Perform the TREK probe alignment procedure (refer to Routine 41F2).

41F2. TREK Probe Alignment. Estimated time to complete this procedure: 30 minutes.

Note Perform this alignment whenever a new TREK probe or TREK PC board is installed.

---

a. Power down the printer at the operator panel.

b. Open the rear panel door (4 mm Allen) for submodule 2 to access the BUM** PC board.

c. On the BUM** PCA, locate connector X73.

d. Attach the positive probe of the DVM to pin number 22B (refer to Figure 2-13). Be sure not to short the probe to any of the surrounding pins or damage to the PCA could result.

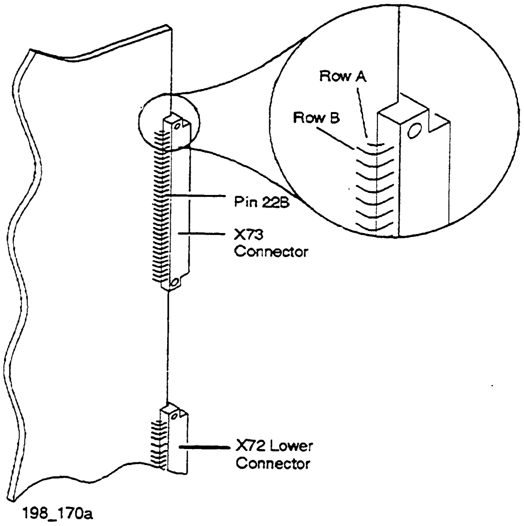


Figure 2-13. BUM PCA, connector X73, Pin 22B**

e. Power ON the printer and let the unit remain idle in standby mode for 5 minutes. This allows any charges on the drum to stabilize.

f. The DVM should read 0 to 10 mV dc. If necessary adjust pot P1 on the TREK PC board (refer to Figure 2-12) until the DVM indicates the specified voltage.

Developer Station

Routine 42

42A. Developer Assembly

42A1. Developer Assembly Removal/Replacement (2 & 4 Roller). Estimated time to complete this procedure: 1 hour.

Warning **The developer station weighs approximately 132 pounds (60 kg). To do this procedure safely and avoid injury, 2 people are required.**

---

a. Purge the developer (refer to Routine 42B1).

b. Power down printer at the operator panel; set the main circuit breaker to OFF.

c. Remove the PC drum (refer to Routine 41A1).

d. Open the rear doors of printer; remove the panel cover above the developer station with a 4-mm Allen wrench.

e. Unlock and slide out the developer station with the handle "G" (refer to Figure 2-14).

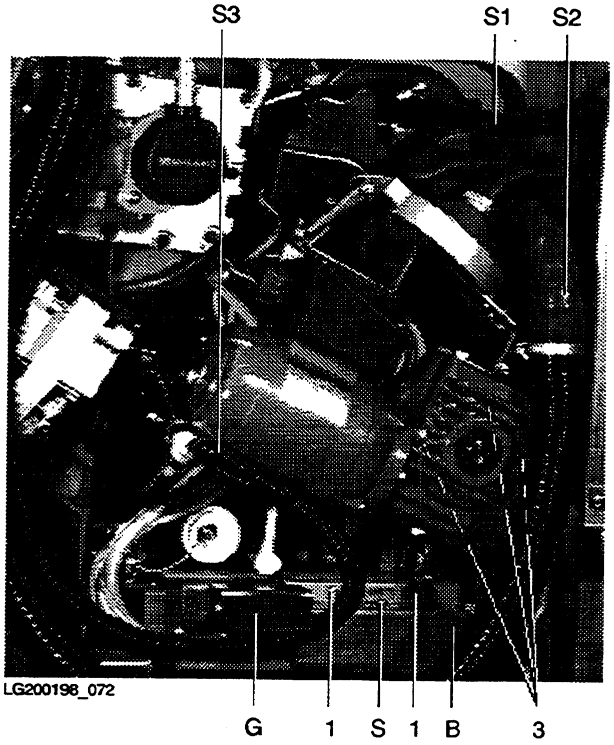


Figure 2-14. Toner Box and Developer Station

f. Remove the tubes "S1", "S2", and "S3" from the developer station and the toner box (refer to Figure 2-14).

g. Remove the toner box assembly from the developer station. (refer to Routine 43A1).

h. Remove the 2-Tx20 screws "1" (refer to Figure 2-14) holding the connector bracket "B" in place. Unhook the connector bracket from the slide rail assembly and let it hang.

i. Hold the developer station eccentric "L" lifting pin with a 16 mm open end wrench, and unscrew the center pin "Z" using an 11 mm open end wrench (refer to Figure 2-15). Remove both of the pins.

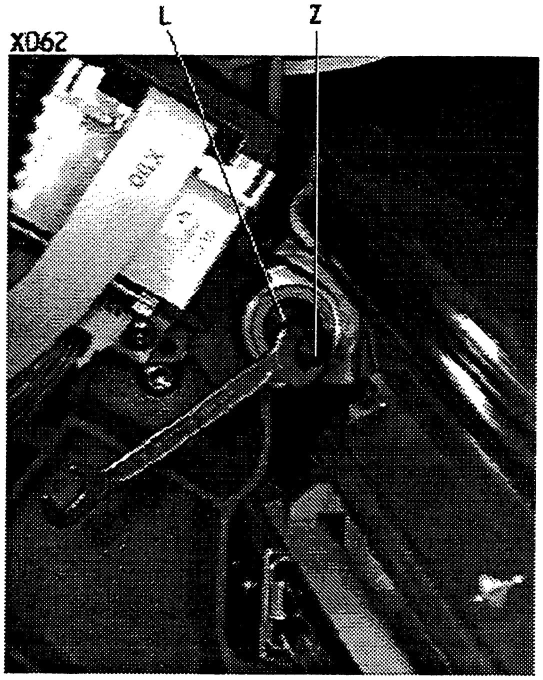


Figure 2-15. Eccentric Lubrication

j. The developer station is ready to lift out. When lifting it out, the person on the side that the lifting pin came out of will have to lift their side higher so the bushing that holds the lifting pin clears the rear EP area casting. Two people are required to lift this assembly.

Note

There are 4 holes (2 square, and 2 round) under the developer station; 1 each at the front side and 1 each at the rear. On the slide rail assembly there are 2 locating pins, one in front, one in the rear. The round holes on the developer station should align with the round locating pins on the slide rail assembly. If the round locating pins are aligned with the square holes in the developer station, the developer station will not lock in the rail assembly when it is reinstalled.

---

k. Reinstall the developer station in reverse removal order.

l. When reinstalling the lifting pin, the flat surface should be on top so that it mates correctly with the lifting rod from the front of the printer. After tightening the center pin, lubricate the eccentric part of the lifting pin with general lubricant (HP part number, 00183920-SNI).

Caution When installing a new developer station, be sure to insert the ventilation screw into new gear motor (instructions provided with new unit). Also, insert a plug in the old gear motor before shipping. This precaution will prevent oil leakage from the gear motor.

m. When installing a new 2 roller unit, be sure to verify the jumper setting on the Bias PCA (refer to Routine 42D2, starting at Step J).

42B. Developer Mixture

42B1. Purging the Developer (2 & 4 Roller). Estimated time to complete this procedure: 30 minutes.

a. Printer status must be at idle.

b. Place an empty toner bottle in the waste toner container (catch box).

c. Turn knob "P" on the upper left side of the drive side to the Service position (refer to Figure 2-16).

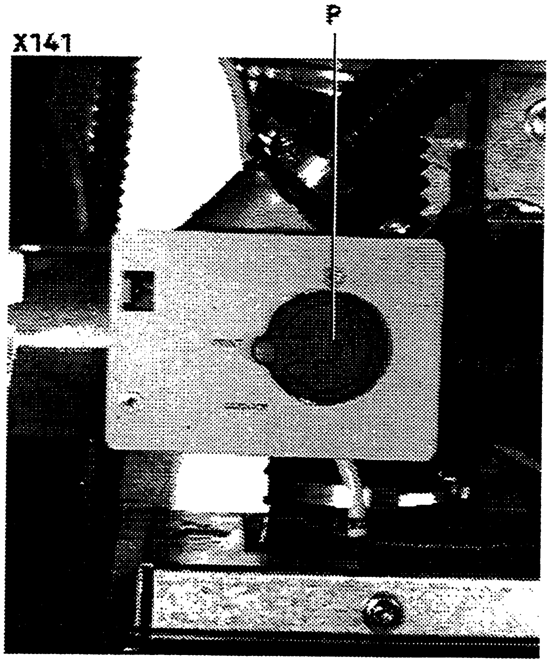


Figure 2-16. Print/Service Control

d. Remove plug “K” at the lower left hand corner of the developer station (refer to Figure 2-17).

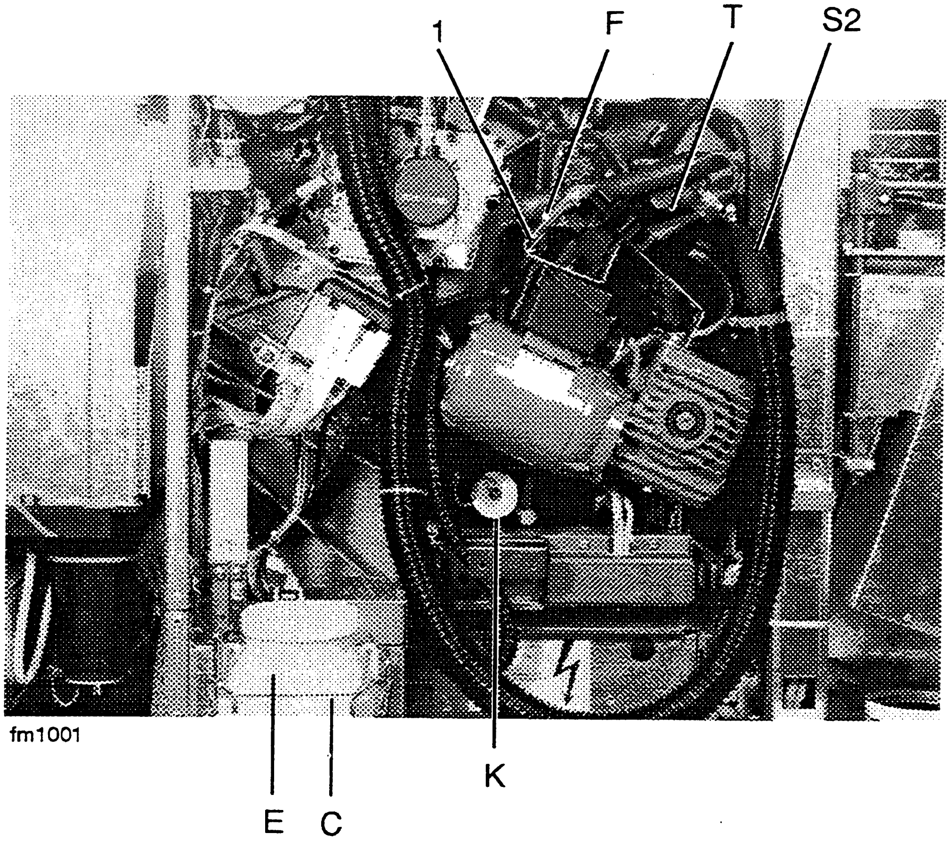


Figure 2-17. Locking Cap (1)

e. Remove tube "S2" from the toner box mounting, and insert it into the opening where plug "K" was removed (refer to Figure 2-17, and Figure 2-18). Insert "S2" so that guide pins "N" align in slots (refer to Figure 2-18).

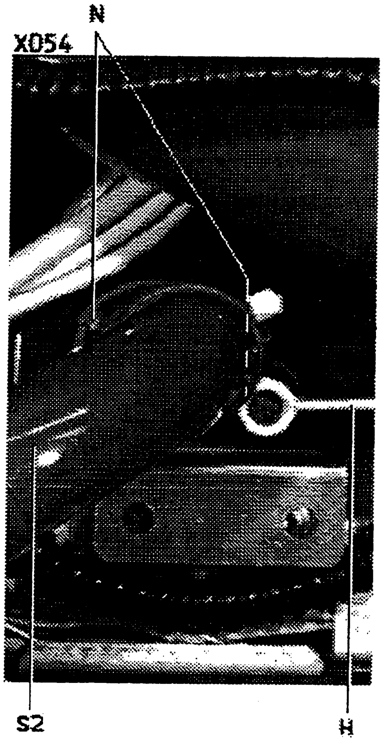


Figure 2-18. Locking Cap (2)

f. Rotate lever "H" to the right in order to lock "S2" securely into place (refer to Figure 2-18).

g. Press the (MENU) key on the operator panel. From the menu selections, select 3.0 (Developer). Select *Yes* with the down arrow (beneath the (MENU) key), and press (ENTER) to begin the purge process. The printer will automatically stop when the process is complete.

h. When purging is complete mount nozzle "S2" back on toner box. Insert plug "K" back into developer station. Return knob "P" to print position.

42B2. Refilling the Developer (2 & 4 Roller). Estimated time to complete this procedure: 30 minutes.

a. Tumble a new bottle of developer to ensure the contents are loose. Install the new bottle of developer mixture "C" in the cage "E" and hang on the bracket on SV2-E35 (refer to Figure 2-19).

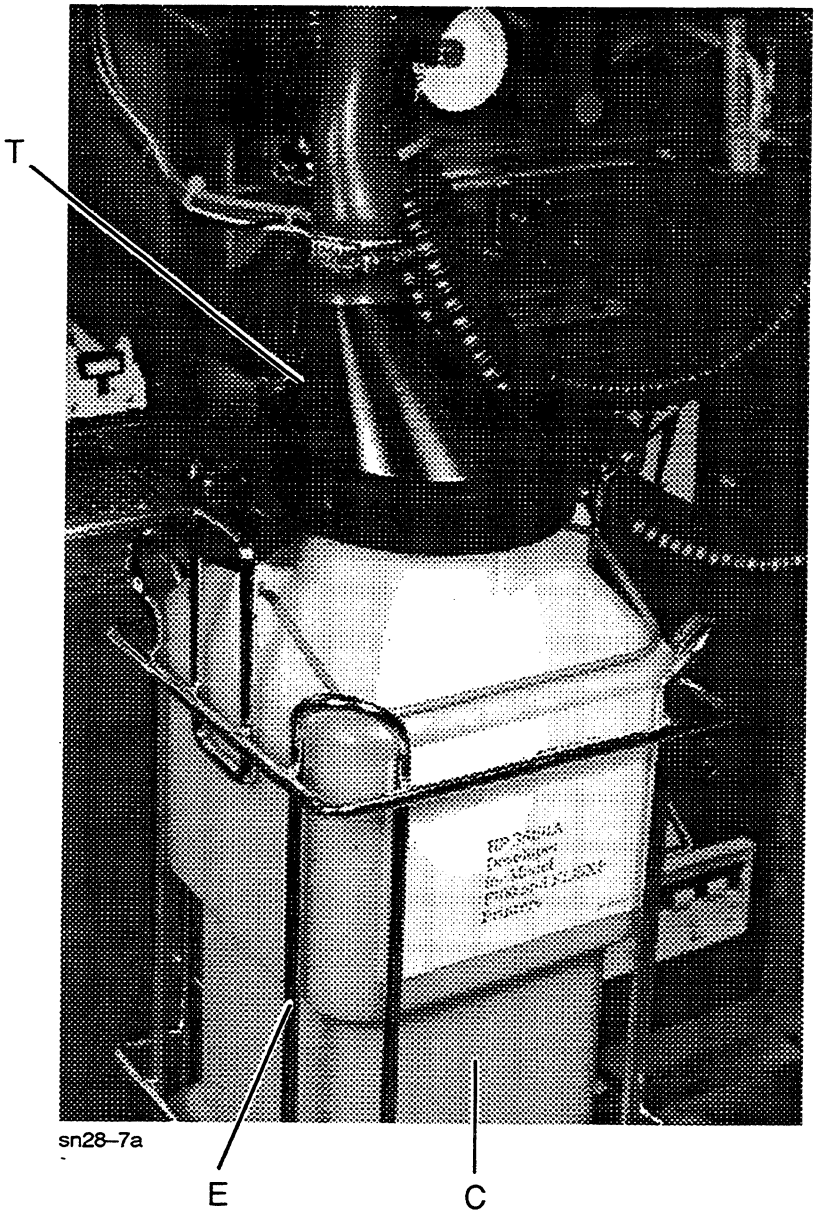


Figure 2-19. Locking Cap (3)

b. Remove the cap from the new developer bottle.

c. Press spring plate "F", and unhinge lock "1" to remove funnel "T" (refer to Figure 2-17).

d. Attach the developer funnel "T" to the top of the developer bottle "C". Be sure that it is fastened securely (refer to Figure 2-19).

e. Invert the bottle/cage/funnel assembly and attach it to the panel cover above the developer station (refer to Figure 2-20). Make sure that the hose "S2" from the funnel is not bent or twisted.

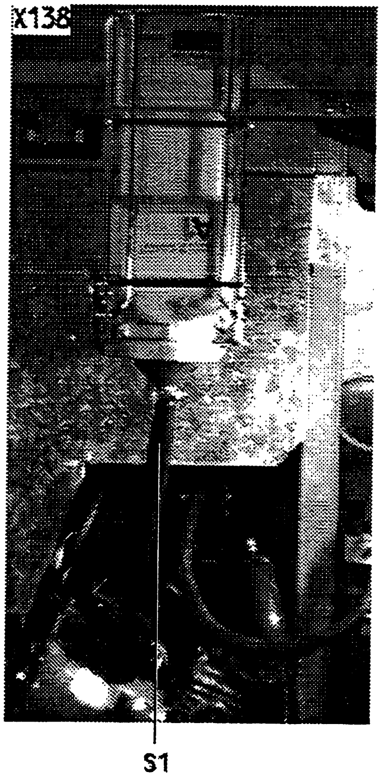


Figure 2-20. Developer Filler Tube

f. Press the (MENU) key on the operator panel and select 3.5 (Fill Developer). Select YES with the down arrow key (beneath the (MENU) key) and press (ENTER).

g. After this process is complete, make sure that the entire bottle of developer is empty. If not, repeat the previous step.

h. When the refilling is complete, Remove the empty developer bottle. Return funnel to storage position. Close remaining panels and doors.

42C. Red LED Strip

42C1. Removal/Replacement of Red LED Strip (4 Roller Only). Estimated time to complete this procedure: 30 minutes.

a. Power down printer at the operator panel; set the main circuit breaker to OFF.

b. Open the rear doors of the printer; remove panel cover above developer station (4-mm Allen).

c. Remove the toner box (refer to Routine 43A1) and vacuum the area around the dosage roller.

d. Disconnect plugs X33 and X15 (refer to Figure 2-21) on the developer assembly.

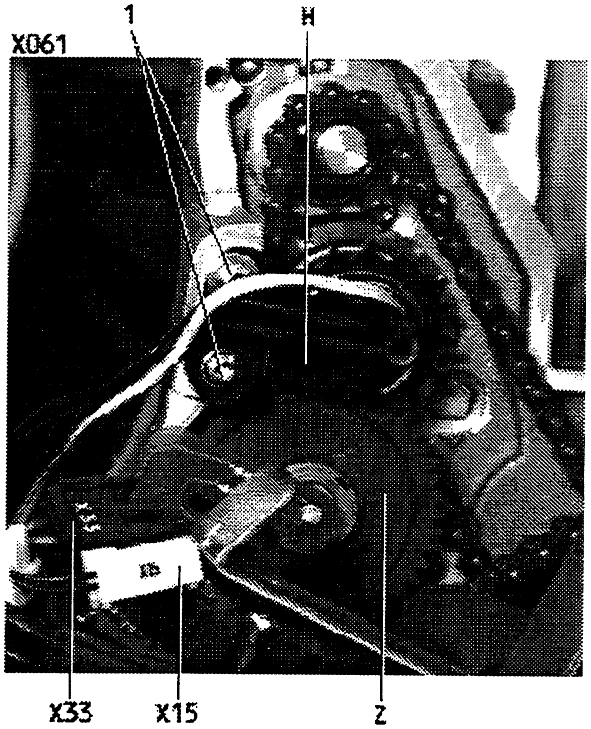


Figure 2-21. Red LED Assembly Removal and Replacement

e. Remove 3-Tx25 screws securing the upper cover on the developer station gear assembly.

f. Remove 2-Tx20 screws "1" (refer to Figure 2-21), and slide out the LED assembly.

g. Remove tie-wrap "K" from the LED assembly (refer to Figure 2-22).

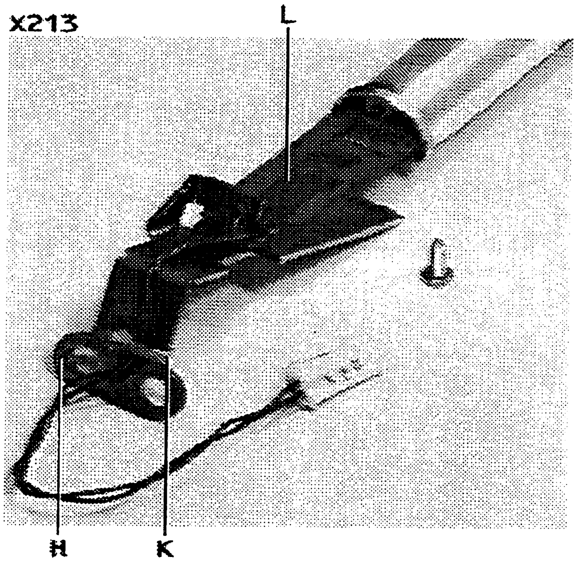


Figure 2-22. Red LED Assembly

h. Install the replacement LED assembly in reverse removal order. Snug the 2 mounting bracket screws "1" (refer to Figure 2-21) and center the LED assembly inside the tube. Tighten the lower screw 1/8 turn while watching that bracket "H" stays centered. Finish tightening screws to secure assembly. The LED assembly must be centered in the tube; if it moves off center, repeat this step.

42C2. Removal/Replacement of Red LED Strip (2 Roller Only).

a. Power down printer at the operator panel; set the main circuit breaker to OFF.

b. Open the rear doors of the printer; remove panel cover above developer station (4-mm Allen).

c. Partially slide out developer station for easier access.

d. Unlatch developer fill funnel and set aside.

e. Remove 6-Tx15 screws "1" (refer to Figure 2-23).

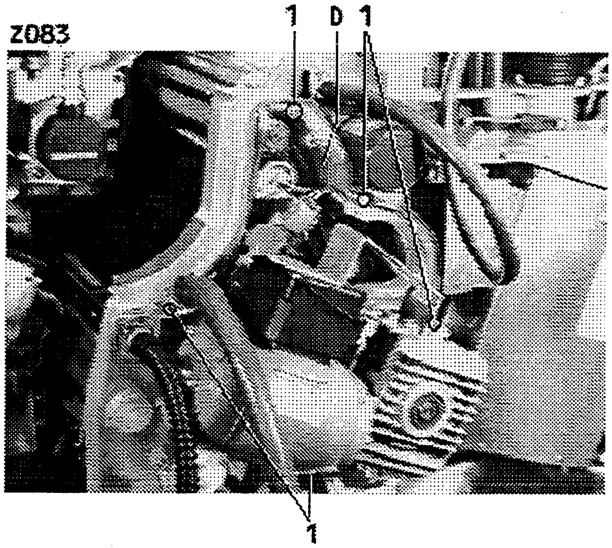


Figure 2-23. Removal and Replacement of Red LED Strip (2 Roller Only) (1)

f. Remove cover "D" (refer to Figure 2-23).

g. Remove cable tie "K" (refer to Figure 2-24).

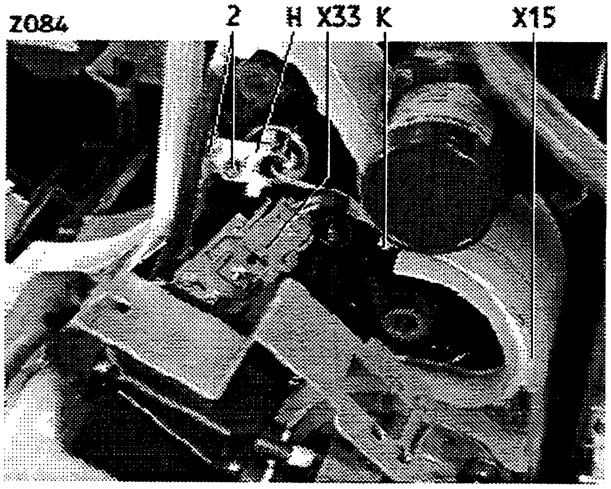


Figure 2-24. Removal and Replacement of Red LED Strip (2 Roller Only) (2)

h. Disconnect X33 and X15. Set aside (refer to Figure 2-24).

i. Remove 2-Tx20 screws "2" (refer to Figure 2-24).

j. Pull out red LED assembly.

k. Remove screw “3” (refer to Figure 2-25).

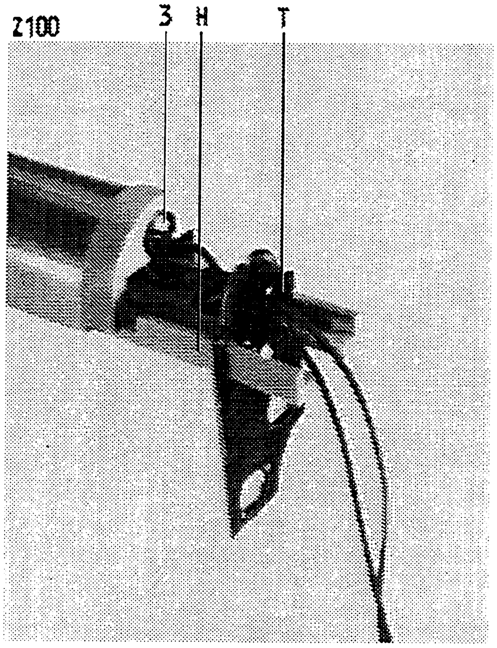


Figure 2-25. Removal and Replacement of Red LED Strip (2 Roller Only) (3)

l. Pull out mounting bracket “H” and LED strip from tube (refer to Figure 2-24 and Figure 2-25).

m. Remove locking grommet “T” from the bracket (refer to Figure 2-25).

n. Install new LED strip in reverse order. After securing LED strip in tube, clean off LED lens using a soft lint-free wipe.

42D. Developer Bias PCA Voltage

42D1. Removal/Replacement BIA PCA (4 Roller Only).** Estimated time to complete this procedure: 30 minutes.

a. Power down printer at the operator panel; set the main circuit breaker to OFF.

b. Open the rear doors of the printer; remove panel cover above developer station (4-mm Allen).

c. Remove the toner box (refer to Routine 43A1) and vacuum the area around the dosage roller.

d. Disconnect plug X33 (refer to Figure 2-26).

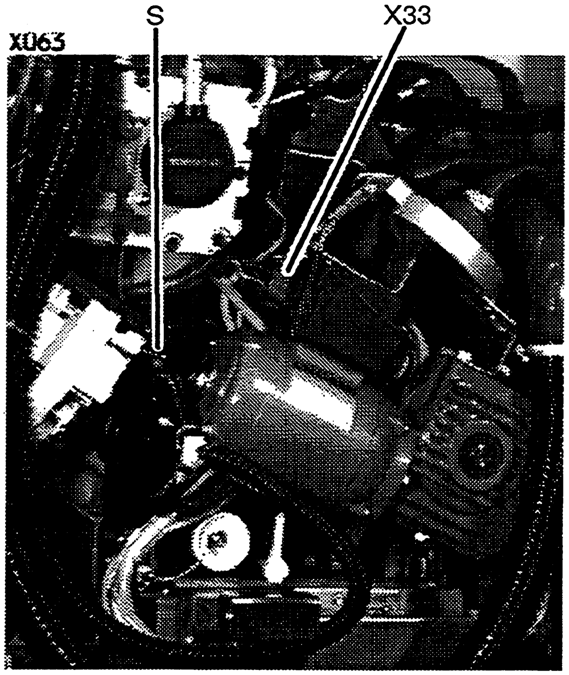


Figure 2-26. BIAS PC Board Removal and Replacement

e. Unlatch the developer fill funnel and set aside.

f. Remove 3-Tx25 screws securing the upper cover over the developer station gear assembly.

g. Remove the Bias PC board by removing the 2-Tx20 screws “2” and flat washers that attach it to the developer (refer to Figure 2-27).

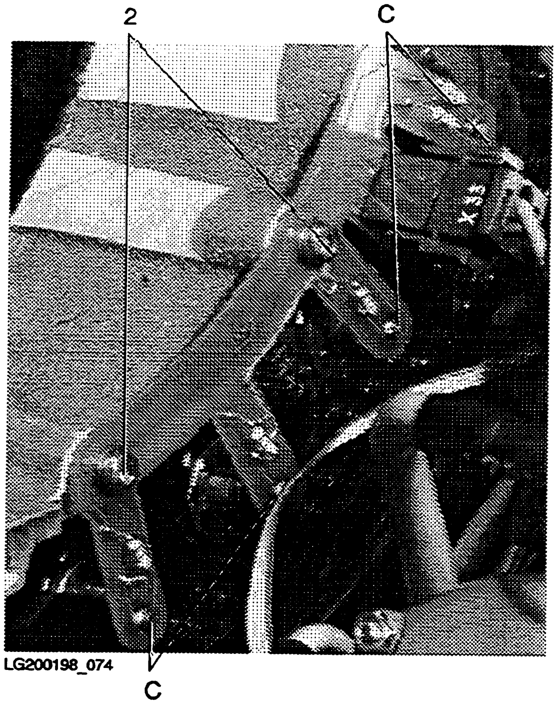


Figure 2-27. Sliding Contacts

Caution The 2 washers are located between the Bias PC board and the developer. Take care to prevent them from falling into the gear assembly.

h. Install the replacement Bias PC board in reverse removal order.

i. After installation of the replacement Bias PC board, check the 4 contacts “C” (refer to Figure 2-27) for contact with the developer rollers.

42D2. Removal/Replacement BIA PCA (2 Roller Only).** Estimated time to complete this procedure: 30 minutes.

a. Power down printer at the operator panel; set the main circuit breaker to OFF.

b. Open the rear doors of the printer; remove panel cover above developer station (4-mm Allen).

c. Partially slide out developer station for easier access.

d. Unlatch developer fill funnel and set aside.

e. Remove 6-Tx15 screws “1” (refer to Figure 2-23).

f. Remove cover “D” (refer to Figure 2-23).

g. Remove cable tie “K” (refer to Figure 2-24).

h. Disconnect X33. Set aside (refer to Figure 2-24).

i. Remove 2-Tx20 screws "4" (refer to Figure 2-28).

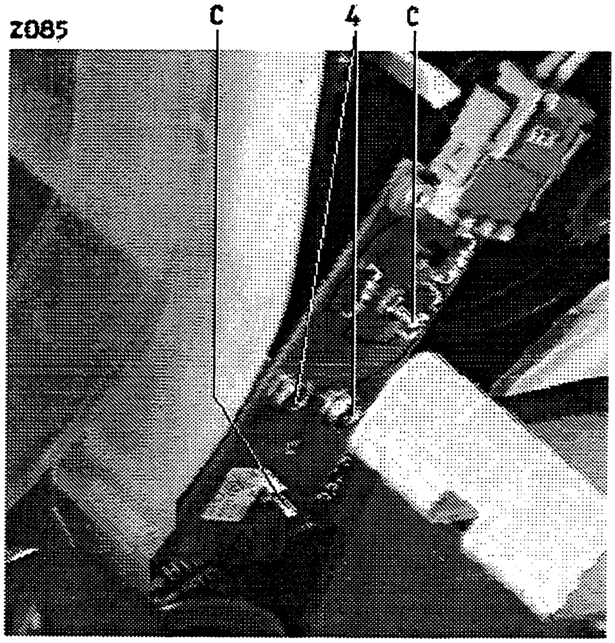


Figure 2-28. Removal/Replacement Bias PC Board BIA** (2 Roller Only) (1)

j. On new Bias PCA, set jumper on X1 (refer to Figure 2-29) according to the printer model (refer to Table 2-3).

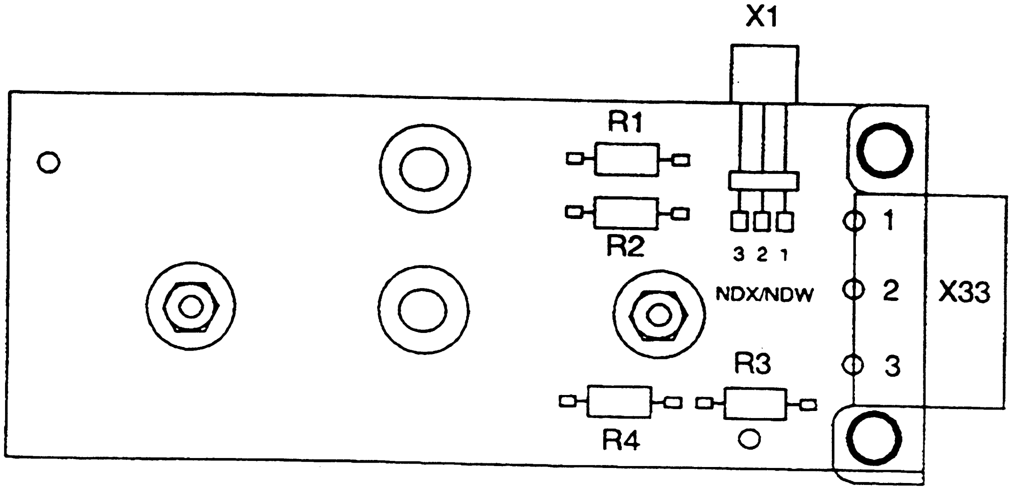

X1
R1
R2
3 2 1
NDX/NDW
R3
R4
1
2
3
X33

Figure 2-29. Removal/Replacement Bias PC Board BIA** (2 Roller Only) (2)

Table 2-3. Jumper Settings

F100	F135
X1	X1
1+2	2+3

k. Install in reverse order.

l. After installation of the Bias PCA, check 2 points "C" for contact with the developer rollers (refer to Figure 2-28).

42D3. Developer Bias Voltage Check (2 & 4 Roller). Estimated time to complete this procedure: 30 minutes.

Note This procedure requires the HELPU utility. If HELPU is not available, measure the bias voltage while the printer is in Submodule Print Mode.

a. Printers using the 2 roller developer unit should verify the jumper setting on the Bias PCA (refer to Routine 42D2, Step J.)

b. Open rear doors of printer.

c. Power ON the printer.

d. Press the MENU key on the operator panel and select 1.9 (Print Contrast).

e. Select NORMAL contrast with the down arrow key (below the MENU key), and press ENTER.

f. Put the printer into Online Test Mode (Menu 4.1) and press ENTER).

g. Using HELPU, turn on the bias voltage. If HELPU is not available, place the printer in Submodule Print Mode, and start printing.

h. Measure the bias voltage at test points above connector X137 on the high voltage power supply (located at the upper right corner of the supply). The voltage should read 2.35 Vdc +/- 0.12 Vdc. If the voltage is out of specification, refer to the note below. No adjustment capability is available for the high voltage supply.

i. If HELPU was used, turn OFF the bias voltage; if Submodule Print Mode was used, stop the printer.

Note The resistance between pins 1 and 3 on connector X137 (located on the high voltage power supply) should be between 600 K Ω and 1.6 M Ω. The printer must be powered OFF when checking the resistance.

42D4. Developer Station Housing Cleaning, Paddle Roller. Replacement (2 Roller Only)

a. Purge developer station (refer to Routine 42B1).

Note Developer must be purged from the station before maintenance cover "W" is removed.

b. Power down printer at the operator panel; set the main circuit breaker to OFF.

c. Open the rear doors of the printer; remove panel cover above developer station (4-mm Allen).

d. Remove developer station from printer(refer to Routine 42A1).

e. From the rear of the developer, remove 3-Tx20 screws "5" (refer to Figure 2-30).

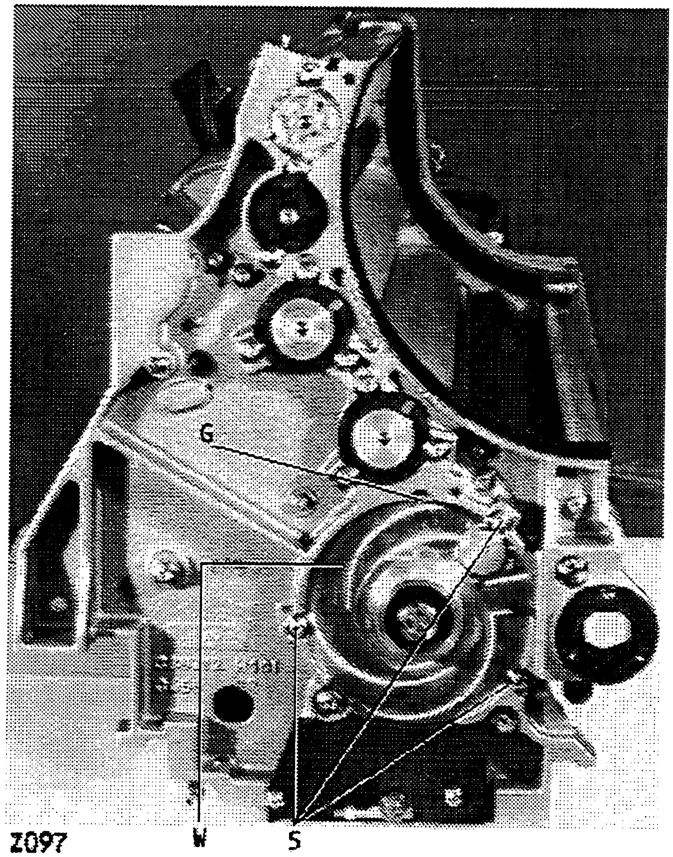


Figure 2-30. Developer Station, Paddle Roller Replacement (2 Roller Only) (1)

f. Slide out maintenance cover "W" and paddle roller assembly "S" (refer to Figure 2-31).

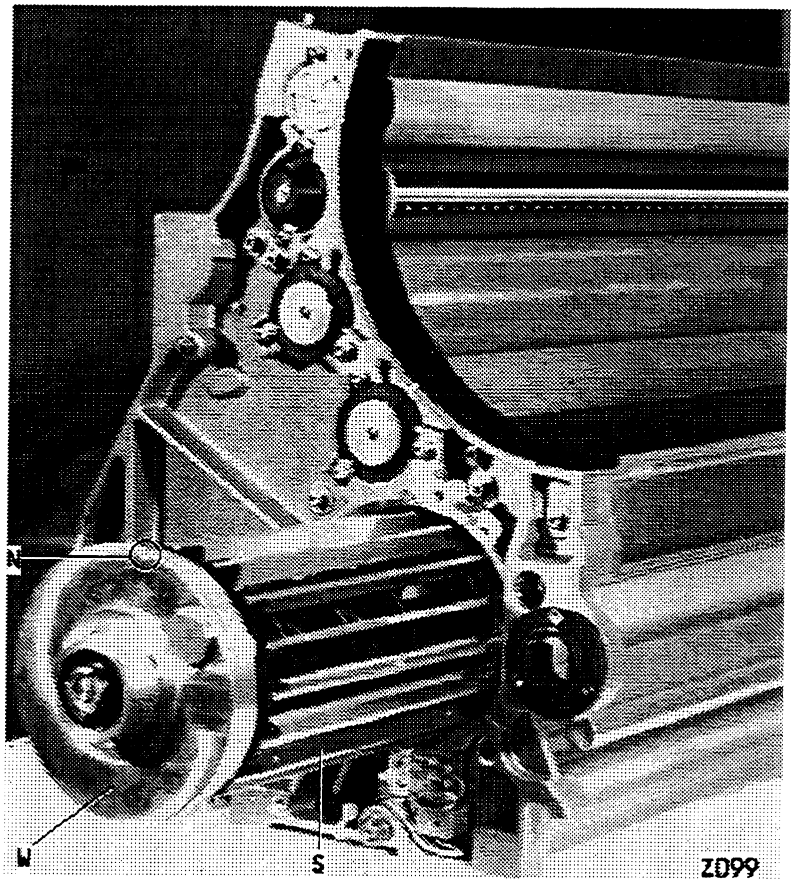


Figure 2-31. Developer Station, Paddle Roller Replacement (2 Roller Only) (2)

g. Vacuum out developer station housing and paddle roller if necessary.

h. Install in reverse order. Be sure to align groove "N" in cover "W" with setscrew "G" when sliding assembly back into housing (refer to Figure 2-30 and Figure 2-31).

42E. Developer Lifting Mechanism Gear Removal

42E1. Developer Lifting Mechanism Gear Removal. Estimated time to complete this procedure: 30 minutes.

a. Power down printer at the operator panel; set the main circuit breaker OFF.

b. Open front and rear doors of printer; remove panel cover above developer station (4-mm Allen).

c. Open PC drum cover door as far as possible to disengage developer assembly.

d. Unlock and slide out the developer station until it stops.

e. Remove 4-Tx25 screws securing the cover plate below the PC drum cover door.

f. Press in latch plate "B" to unlock, and then close the PC drum cover door (refer to Figure 2-32).

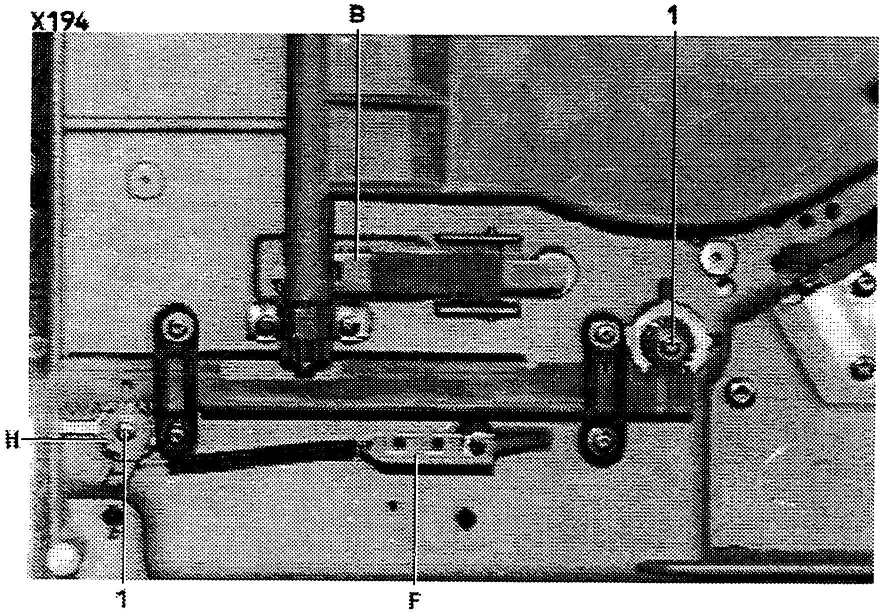


Figure 2-32. Developer Lifting Mechanism (1)

g. Slide the spring tension adjusting plate "F" to the right, and then down, to remove it from the locating pin. Remove the left end of the spring from the spring mounting bracket "H" (refer to Figure 2-32).

h. Remove only the 2-Tx25 screws "1" and the spring mounting bracket "H". Do not remove gears.

i. Mark the position of gears “D” and “E” in relation to toothed rail “Z” for re-alignment later (refer to Figure 2-33).

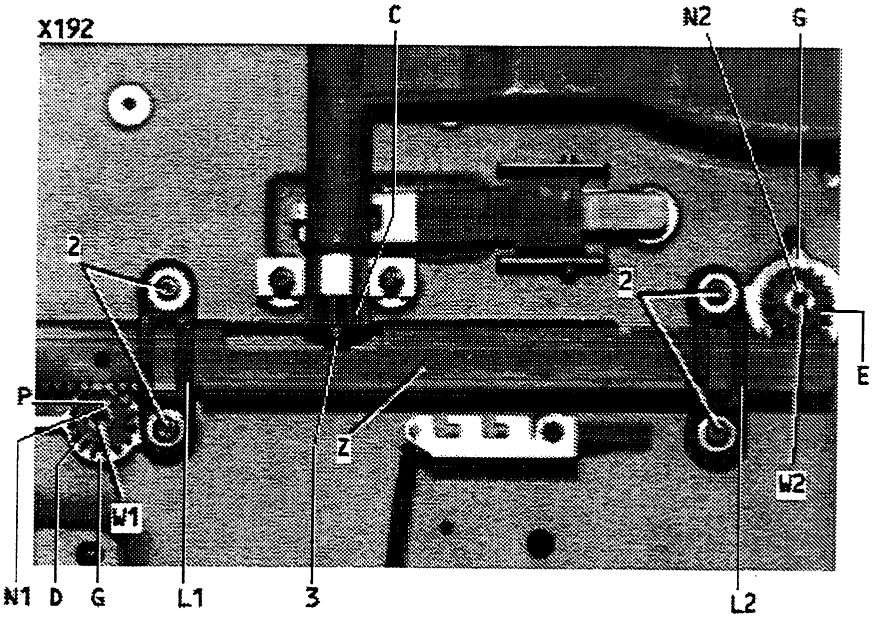


Figure 2-33. Developer Lifting Mechanism (2)

j. Remove the 4-Tx25 screws holding the guide brackets “L1” and “L2” for the toothed rail (refer to Figure 2-33).

k. Remove screw “N1” from gear “D”, and screw “N2” from gear “E”.

l. Remove the 2 gears “D” and “E” from their drive shafts, being careful not to lose the Woodruff keys “W1” and “W2” (refer to Figure 2-33).

m. Remove the toothed rail “Z”.

n. Remove screw “3” (Tx25) holding gear “C” onto the drum door shaft, and remove the gear (refer to Figure 2-33). Be careful to not lose the Woodruff key for this gear.

42E2. Developer Lifting Mechanism Gear Replacement. Estimated time to complete this procedure: 30 minutes.

a. Install gear “C” and its Woodruff key on the drum door shaft. Secure with screw “3” (refer to Figure 2-33).

b. Reinstall toothed rail “Z”, moving it as far to the left as the teeth will allow (notice a hole in the rail should lineup directly over shaft “W1”) (refer to Figure 2-33).

c. Rotate shafts “W1” and “W2” so the key slots on each point straight up.

d. Install gear “D” (with Woodruff key) and spring mounting bracket “H” on shaft “W1”. Make sure that gear “D” matches the alignment mark made in the removal routine above. Secure gear “D” with screw “N1”.

e. Install gear “E” on shaft “W2”. Make sure that gear “E” matches the alignment mark made in the removal routine above. Secure gear “E” with screw “N2”.

f. Install guide brackets “L1” and “L2” and secure with screws “2” (4-Tx25).

g. Install the spring and tension adjust plate "F" between the spring mounting bracket "H" (on shaft "W1") and the locating pin on the casting.

h. Lubricate the toothed rack and the gears with general lubricant (HP part number 00183920-SNI).

i. Open the PCD cover door and slide the developer in.

j. Checked the toothed rail for proper operation or binding by opening and closing the PCD cover door.

k. Reinstall the cover plate under the PCD cover door with 4-Tx25 screws.

42F. Developer Drive Train (4 Roller Only)

42F1. Developer Drive Train Lubrication (4 Roller Only). Estimated time to complete this procedure: 30 minutes.

Tools required:

- Structovis brand chain lubricant, HP part number 1802887-SNI (other lubricants will damage the printer).
- Vacuum cleaner.

a. Power down printer at the operator panel; set the main circuit breaker to OFF.

b. Open the rear doors of the printer; remove panel cover above developer station (4-mm Allen).

c. Remover the toner box (refer to Routine 43A1). Vacuum the area around the dosage roller.

d. Unlatch developer fill funnel and set aside.

e. Disconnect plug X33 and X15 (refer to Figure 2-21).

f. Remove 3-Tx25 screws securing the upper cover over the developer station gear assembly. Remove cover.

g. Remove tube "T" for easier access to slot in motor shaft (refer to Figure 2-34).

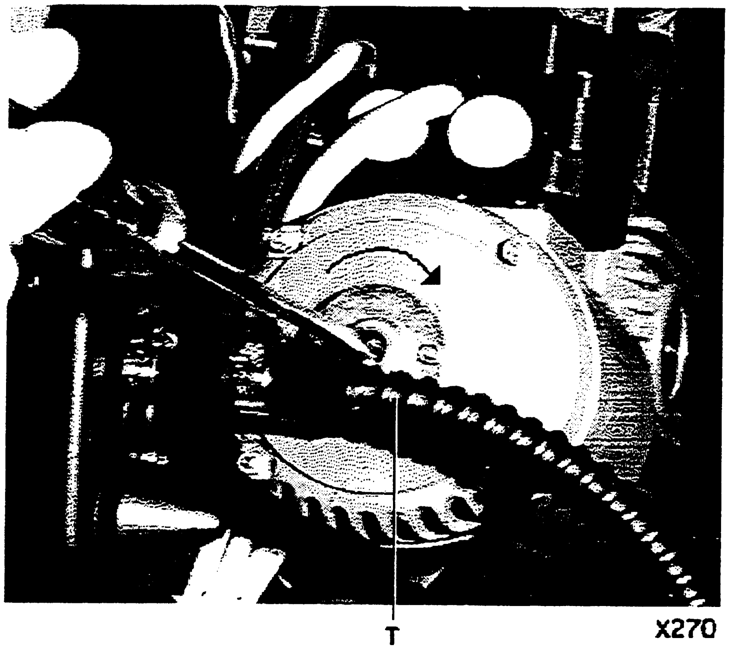


Figure 2-34. Developer Drive Train Lubrication (4 Roller Only) (1)

h. Shield the developer rollers so that no foreign particles or spray lubricant gets into the developer mixture.

i. Protect the BIAS PCA, gear "Z" and contact by covering it with paper or tissue (refer to Figure 2-21).

j. Spray the lubricant on all visible sections of the three drive chains. Spray between the links in order to get the lubricant to the under side (refer to Figure 2-35).

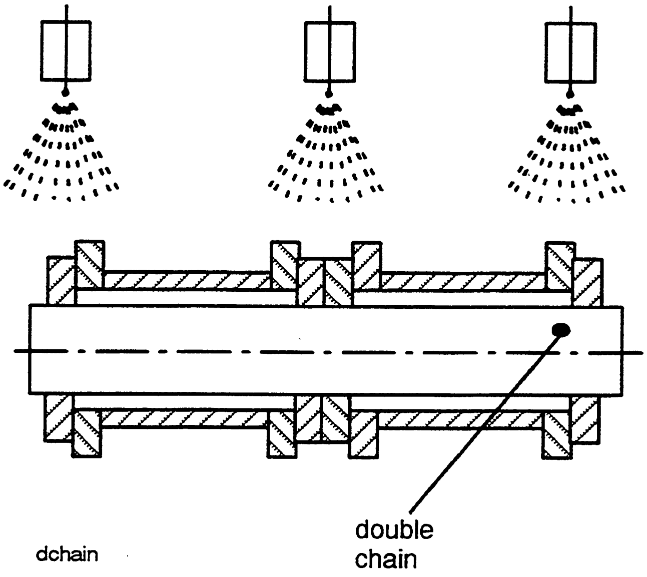


Figure 2-35. Developer Drive Train Lubrication (4 Roller Only) (2)

k. Using a straight-blade screwdriver, turn the developer drive motor shaft clockwise to expose further sections of the chains. Carefully lubricate all sections.

l. Wipe away any excess lubricant that may have over sprayed or dripped down.

m. Re-assemble developer station and printer.

42G. Developer Station Cooling Fans

42G1. Developer Station Cooling Fan Removal and Replacement,. Internal (4 Roller Only)

Estimated time to complete this procedure: 45 minutes.

Tools required:

- Multi-meter

Warning **This routine requires the developer station to be removed from the printer. Two people are required to do this safely and avoid injury.**

---

a. Power down printer at the operator panel; set the main circuit breaker to OFF.

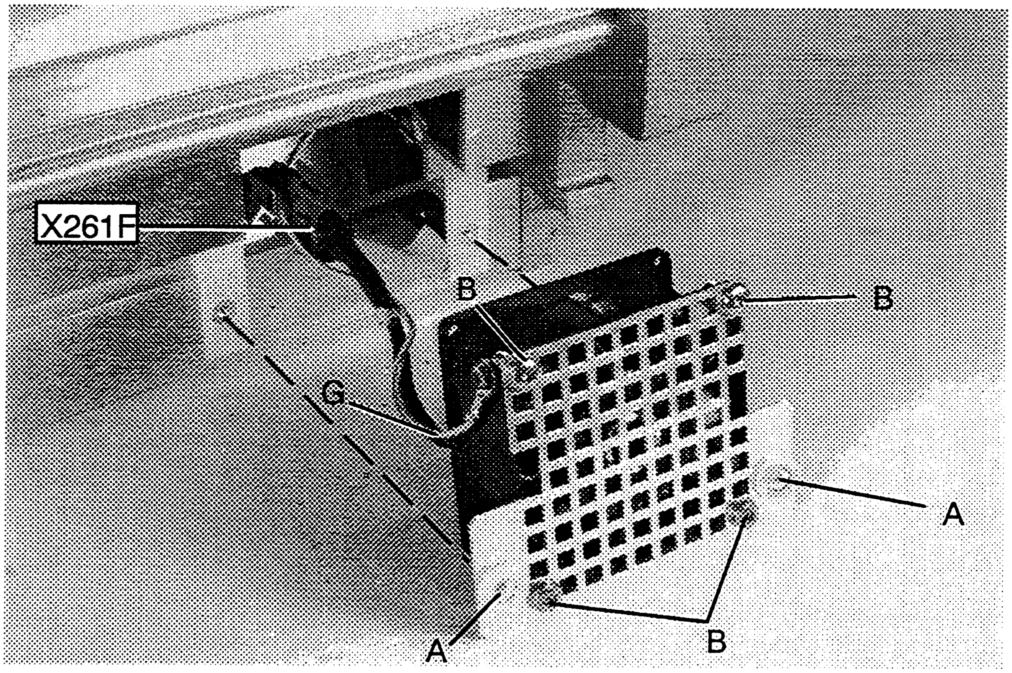
b. Open the rear doors of the printer; remove panel cover above developer station (4-mm Allen).

c. Remove developer station assembly from printer; it will not be necessary to purge the developer (refer to Routine 42A1). Set assembly on protected, flat surface.

d. Remove 2-Tx20 mounting screws, from location “A”, securing fan assembly. Slide assembly out of developer housing (refer to Figure 2-36).

Warning **The fan assembly is electrically insulated from the rest of the developer station. When removing the 2 mounting screws “A”, be sure not to loose the 2 screw insulators or the 2 flat insulators (located between the developer housing and fan mounting bracket).**

This assembly must be kept insulated from the developer bias voltage which is present during print operation.



fm1002

Figure 2-36. Developer Station Cooling Fan, Internal (4 Roller Only)

e. Disconnect connector X261F; remove grounding wire “G” secured by 1-TX20 screw.
f. Remove 4-TX25 screws “B” securing fan to mounting bracket.
g. Clean fan area inside developer housing. Verify that no exposed metal is visible through insulating material. Re-insulate if necessary.
h. Replace fan. Install fan assembly into developer housing. Be careful to install all insulators back into correct position.
i. Using a DVM, measure between the developer housing and fan assembly. Verify that the developer housing is electrically isolated from the fan assembly.
j. Complete assembly of developer station back into printer. Power ON printer.
k. Verify new fan is turning when printing.

42G2. Developer Station Cooling Fan Removal and Replacement,. External

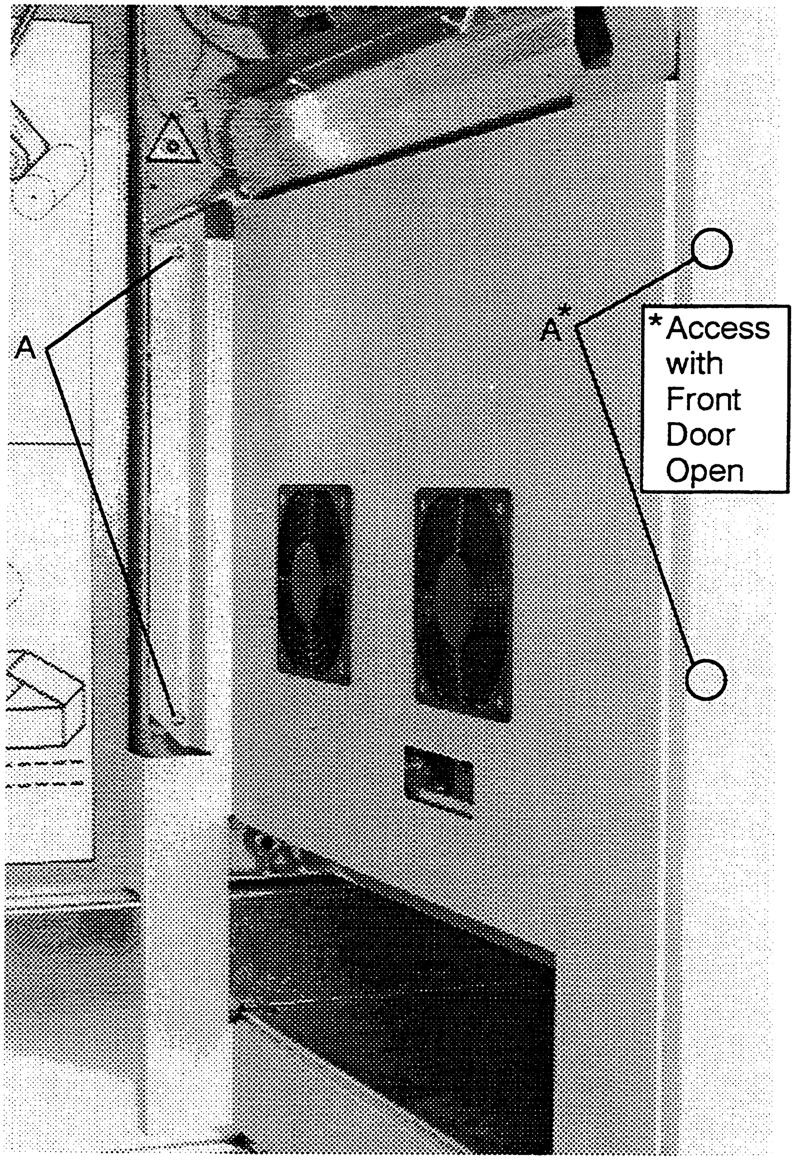
Estimated time to complete this procedure: 30 minutes.

Tools required:

- 7mm wrench or pliers

a. Power down the printer at the operator panel; set the main circuit breaker to OFF.

b. Remover the 4-Tx25 screws "A" that attach the panel on the right side of the paper input area (refer to Figure 2-37).



fm1003

Figure 2-37. Developer Station Cooling Fan, External (4 Roller Only)

c. Cut the cable ties and disconnect the wiring from the fan.

d. Using a 7mm wrench (or pliers) and a Tx20 driver, remove the 4 sets of screws/nuts securing the fan to the side panel.

e. Install the new replacement fan in the reverse removal order and verify the air flow is directed towards the developer station.

Toner Supply

Routine 43

43A. Toner Box

43A1. Toner Box Removal and Replacement. Estimated time to complete this procedure: 10 minutes.

a. Power down printer at operator panel; set the main circuit breaker to OFF.

b. Open front and rear doors of printer; remove panel cover above developer station (4-mm Allen).

c. Open PC drum cover door as far as possible to disengage developer assembly.

d. Unlock and slide out developer station with handle "G" (refer to Figure 2-38).

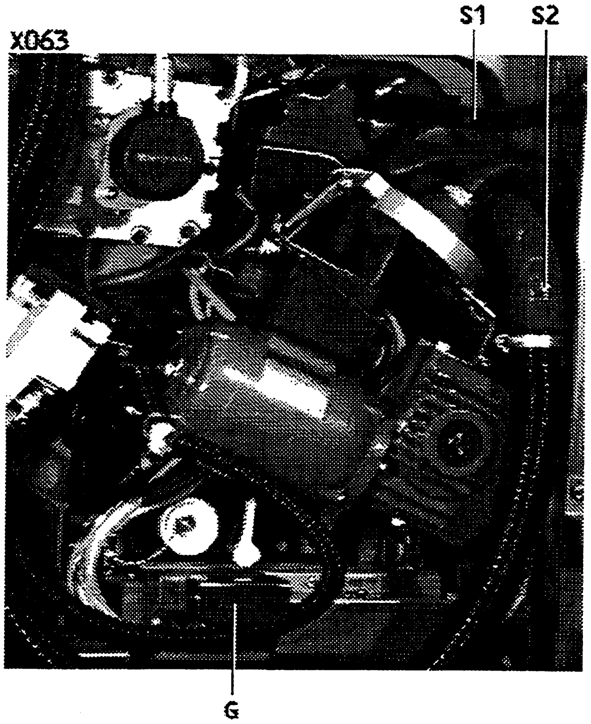


Figure 2-38. Developer Station Lock

e. Remove tubes "S1" and "S2" from the developer station (refer to Figure 2-38).

f. Open latch "V" (refer to Figure 2-39) and lift the toner box to remove it from the developer station. Vacuum any excess toner from around the dosage roller area.

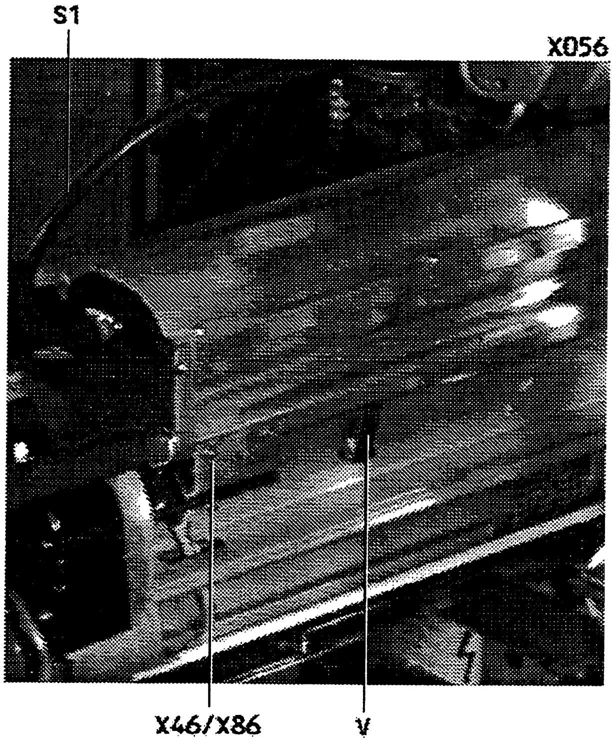


Figure 2-39. Toner Box

g. Install the replacement toner box in reverse removal order.

43B. Toner Box Valve

43B1. Toner Box Valve Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Remove the toner box (refer to Routine 43A1).

b. Disconnect plug X12 (refer to Figure 2-40).

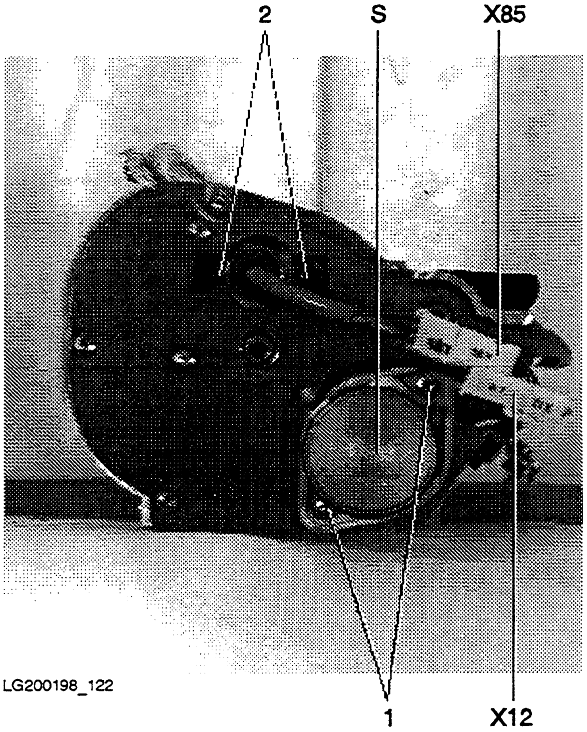


Figure 2-40. Toner Box Valve

c. Remove the 2-Tx20 screws “1”, and remove the suction valve “S”.

d. Install the replacement suction valve in reverse removal order.

43C. Toner Empty Sensor

43C1. Toner Empty Sensor Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Remove the toner box (refer to Routine 43A1).

b. Disconnect plug X85 (refer to Figure 2-40).

c. Remove the 2-Tx20 screws “2”, and remove the toner empty sensor.

d. Install the replacement toner empty sensor in reverse removal order.

43D. Dosage Roller Motor

43D1. Dosage Roller Motor Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Remove the toner box (refer to Routine 43A1).

b. Remove 2-Tx20 screws "3" and remove cover "A" (refer to Figure 2-41).

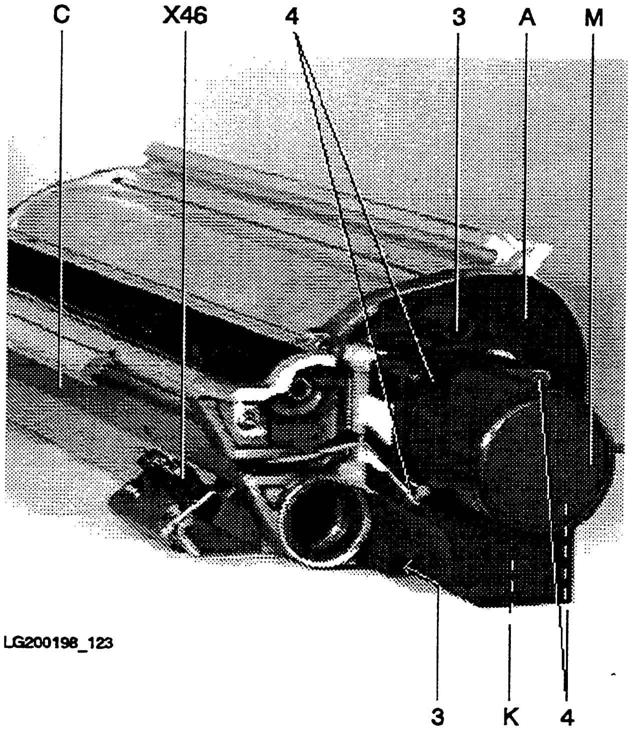


Figure 2-41. Dosage Roller Motor

c. Remove channel cover "C".

d. Unscrew the 2 outside locating pins attaching connector "X46" to the mounting plate (the male pin is located to the left).

e. Remove the 4 7-mm hex head screws "4" that attach the motor.

f. Remove both connectors from the capacitor (white on top).

g. Remove the motor and gear box assembly.

h. Install the replacement motor in reverse removal order. Be sure to mate the shaft coupling in the proper position.

43D2. Dosage Roller Motor Verification. Estimate to complete this procedure: 15 minutes.

a. Using HELPU, turn on the dosage feed motor (toner feed motor) (Main Menu; Check & Test Functions; Basic Unit; Switch Units; Toner Feed).

Note

Turning on the toner feed motor, using HELPU, will force toner into the developer station. Darker print quality may appear on several pages of print as a result.

If HELPU is not available, use Submodule Print (Menu 4.6.0, test 118). Remember, the dosage roller motor might not turn on immediately, the developer mixture must first reduce its current supply of toner.

b. Verify motor operation by viewing the shaft coupling through slot "A" (refer to Figure 2-42).

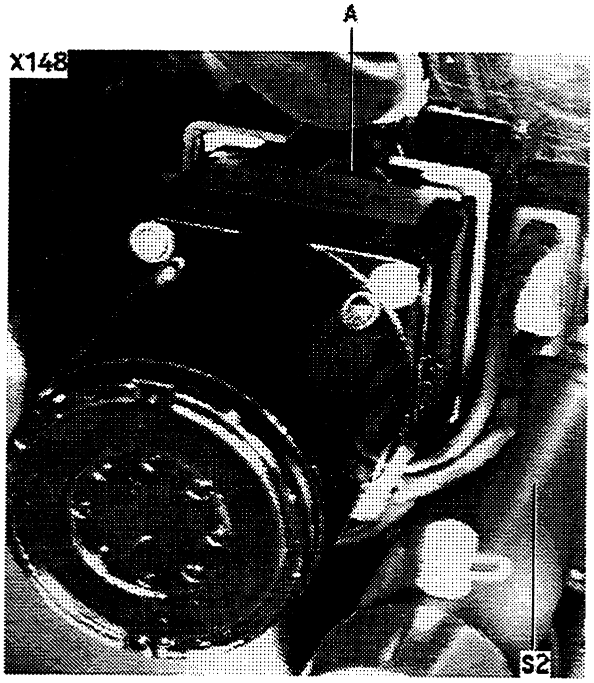


Figure 2-42. Slot in Dosage Roller Motor

43E. Toner Feed Quantity

43E1. Toner Box Output Verification. Estimated time to complete this procedure: 1 hour.

Tools required:

- Toner box extension cable (refer to Parts Catalog for current part number).
- Vacuum cleaner.
- Covered work surface.

a. Remover toner box and lay on protected surface (refer to Routine 43A1).

b. Connect cable "Y" between developer station and toner box (refer to Figure 2-43).

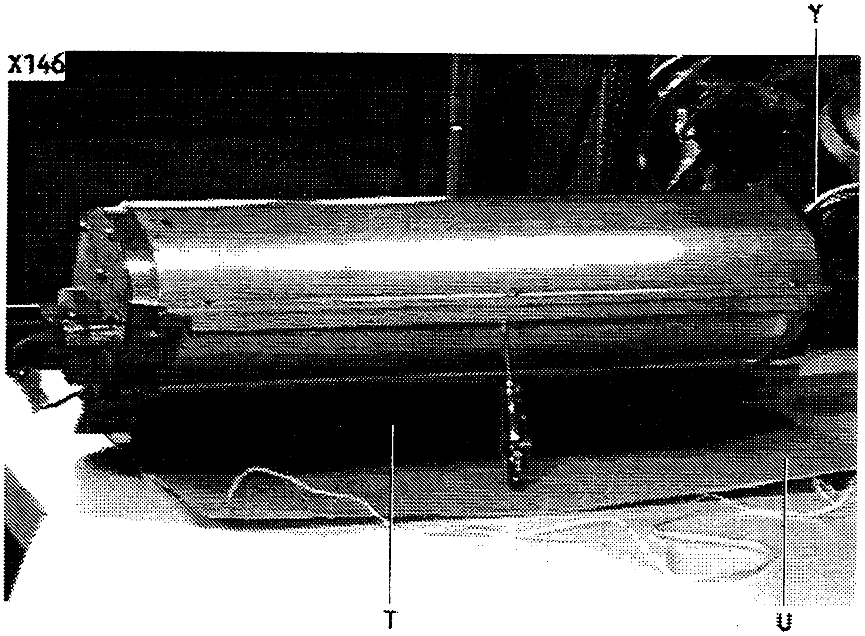


Figure 2-43. Toner Output Verification

c. Verify rest of printer is assembled; power ON printer.

d. Using HELPU, turn on the dosage feed motor (toner feed motor) (Main Menu; Check & Test Functions; Basic Unit; Switch Units; Toner Feed). If HELPU is not available, use Submodule Print (Menu 4.6.0, test 118). Remember, the dosage roller motor might not turn on immediately, the developer mixture must first reduce its current supply of toner.

e. Verify the dosage roller operates smoothly and toner is distributed evenly.

f. Re-assemble toner box onto developer station.

43E2. Air Flow Rate Measurement at the Toner Feed Tube.

Note

- Requires the use of an HP air flow meter, HP part number 1120-1952.
- Perform this measurement during the 2 millionth image PM, or to troubleshoot toner transport errors (ERROR 67.00). Diaphragm "M" under grid "G" must be pulled down by the vacuum during the suction/vibrating cycle (refer to Figure 2-44). If not, vacuum out the toner suction tube before doing this routine.

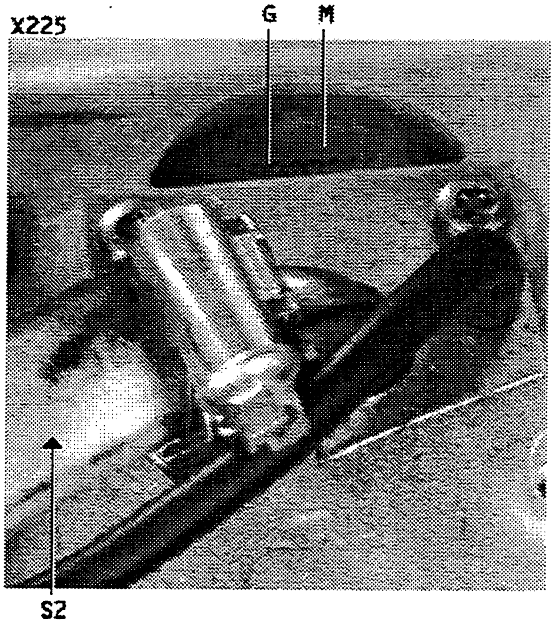


Figure 2-44. Toner Diaphragm and Grid

a. Open the doors on the drive side.

b. Initiate a printing self-test.

c. Remove vacuum pressure tube "U" including grip "C" from the toner box. Insert the pointed end of the air speed probe into the open end of nozzle "C" (refer to Figure 2-45).

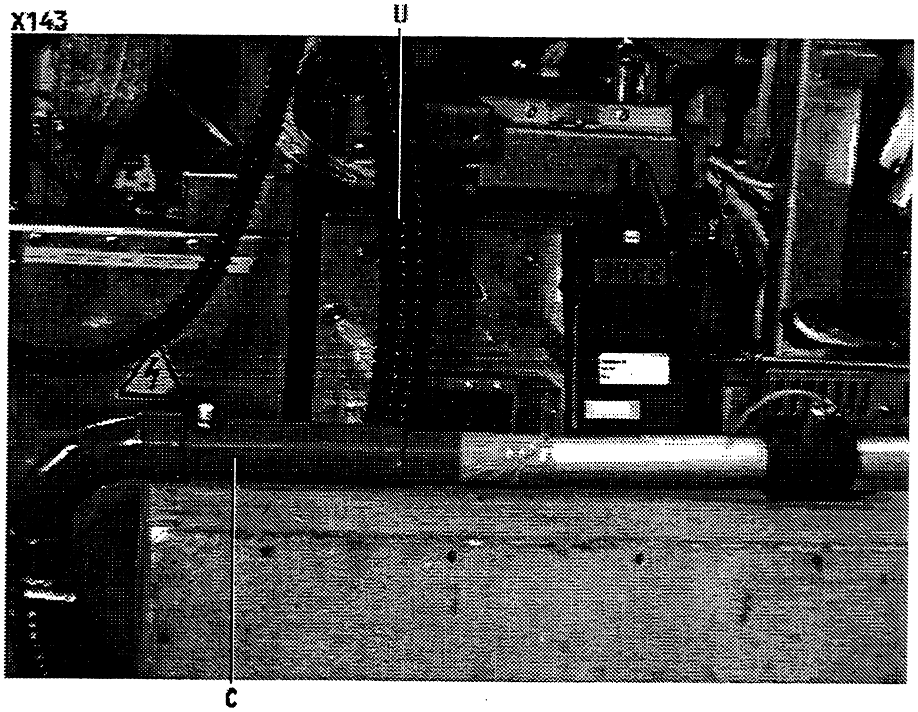


Figure 2-45. Air Flow Meter Installation

d. After 10 seconds, observe the air speed display for a minimum reading of 25 meters/second. If the reading is low, check the vacuum system.

e. Power down printer at operator panel; set main circuit breaker to OFF.

f. Open door in front of submodule 2. On submodule 2, jumper pin 2B (Turnvalve-P; second pin from bottom, outer row) to pin 32B (+5 V; top pin, outer row) on connector X71 on VAG PCA.

g. Set main circuit breaker to ON position (I). Power up printer at operator panel.

Caution Pull off toner feed tube “S2” (refer to Figure 2-46) on both ends, and vacuum out ANY toner that may be inside of the tube to avoid contaminating the measuring probe.

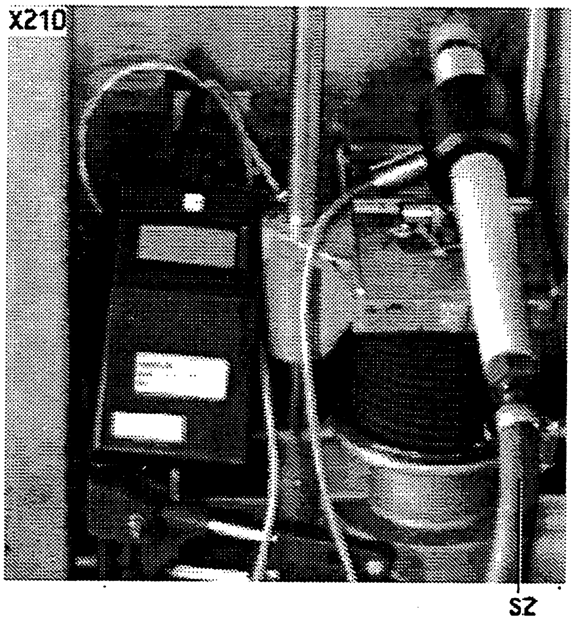


Figure 2-46. Air Flow Meter Cleaning

h. Replace the toner feed tube to the toner box and connect the other end to the pointed end of the air speed measuring probe.

i. Initiate a printing self-test.

j. After 10 seconds, observe the air speed display for a minimum reading of 25 meters/second.

k. Open the jumper connection and note measured air speed value.

l. Reconnect toner feed tube with suction tube.

m. Print approximately 100 pages.

n. Perform measurement 3 times.

o. When suction clock valve is open, minimum value must be 9 meters/second; if this is not so, check toner box for leakage or choking.

p. If the respective flow rate values are not attained, check suction assembly for choking or leakage at toner bottle.

43F. Toner Suction Assembly

43F1. Toner Suction Assembly Removal and Replacement. Estimated time to complete this procedure: 10 minutes.

a. Power down printer at operator panel; set main circuit breaker OFF. Open rear middle door.

b. Loosen clamp "C". Pull off tube "S1" (refer to Figure 2-47).

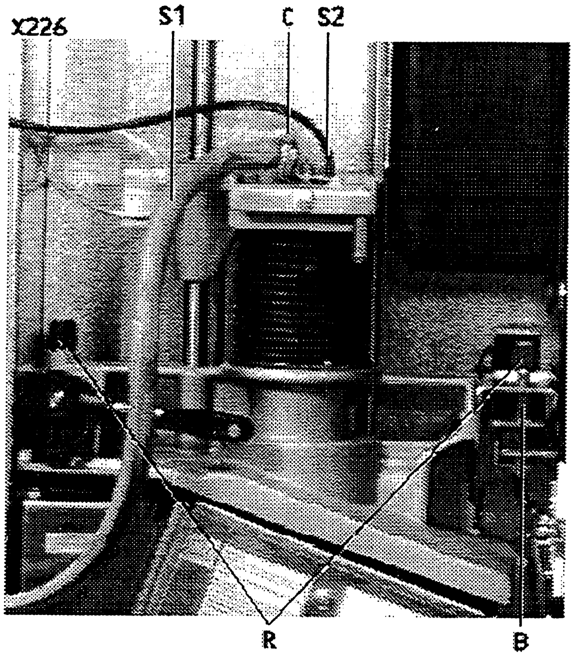


Figure 2-47. Toner Suction Assembly

c. Pull off tube "S2" (refer to Figure 2-47).

d. Loosen the 2 captive screws "R". Remove toner suction assembly by lifting clear of guide pin "B" (refer to Figure 2-47).

e. Install replacement toner suction assembly in reverse removal order.

43F2. Toner Suction Assembly Adjustment. Estimated time to complete this procedure: 10 minutes.

a. Observe that the microswitch for recognizing when a toner bottle is inserted audibly switches when a bottle is latched into position.

b. Adjust the vibrator mechanism as follows: (refer to Figure 2-48).

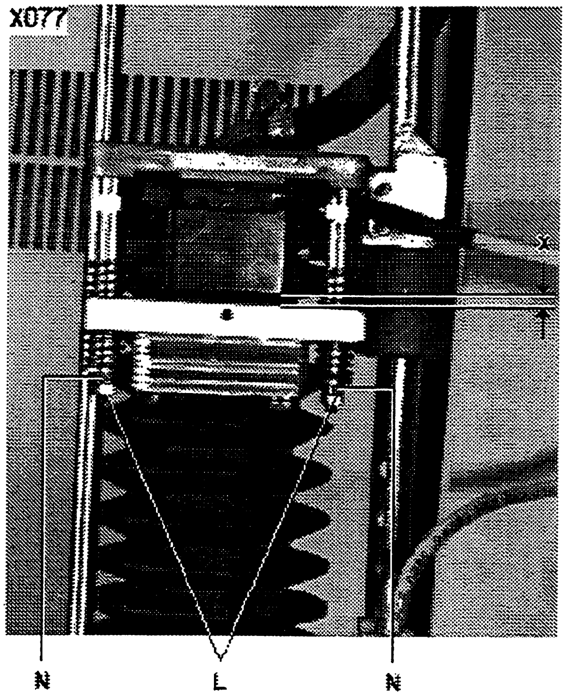


Figure 2-48. Toner Vibrator Adjustment

- Loosen the 2 lock nuts "L" with an 8 mm open end wrench.
- Adjust clearance "X" between the vibrating magnet and rotor to 0.3 mm +/- 0.05 mm (0.012 inch +/- 0.002 inch) with nuts "N"
- Tighten lock nuts "L".

43F3. Air Pump Removal and Replacement. Estimated time to complete this procedure: 15 minutes.

a. Power down printer at operator panel; set the main circuit breaker to OFF.

b. Open doors of printer; remove panel cover above developer station (4-mm Allen).

c. Remove the 2-Tx25 screws "2" that attach the air pump to the printer frame (refer to Figure 2-49).

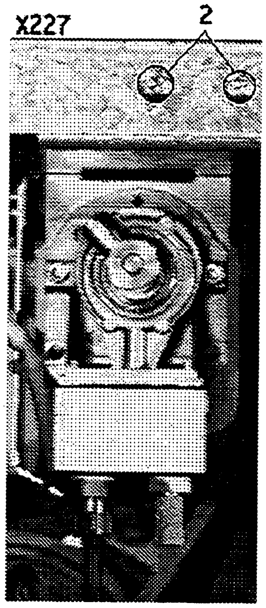


Figure 2-49. Air Pump Removal and Replacement (1)

d. Pull off tube "S2" from the toner suction assembly (refer to Figure 2-47).

e. Remove the grounding screw "3" and wire (refer to Figure 2-50).

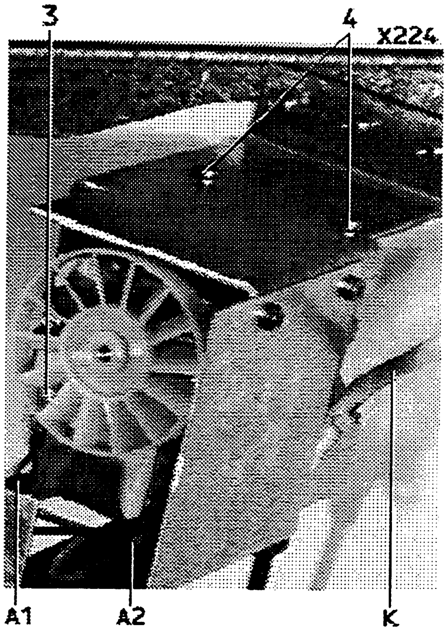


Figure 2-50. Air Pump Removal and Replacement (2)

f. Pull off wires "A1" and "A2" from motor assembly (refer to Figure 2-50). Cut the cable tie that attaches the cable to the motor.

g. Remove the 2-Tx20 screws "4" that attach the air pump to the mounting bracket.

h. Install the replacement air pump in reverse removal order.

43G. Toner Waste Bottle Sensor

43G1. Toner Waste Bottle Sensor Removal and Replacement. Estimated time to complete this procedure: 15 minutes.

a. Power down printer at operator panel; set main circuit breaker to OFF.

b. Slide out controller assembly from front of printer. Remove upper side panel of printer.

c. Loosen clamp "C1" (refer to Figure 2-51).

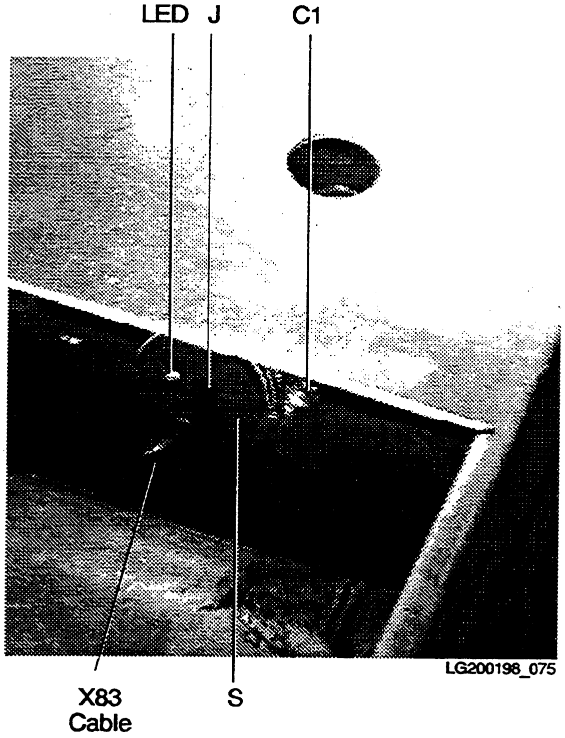


Figure 2-51. Toner Waste Bottle Sensor Removal and Replacement

d. Open the toner waste box and remove the bottle.

e. Push down the metal guard bracket in front of the sensor, and push the sensor towards the front of the printer.

f. Disconnect plug X83 and lift out sensor through side of printer (refer to Figure 2-51).

g. Install the replacement sensor in reverse removal order. Adjust the sensor to 1.5 mm - 0.5 mm (0.059 inch - 0.020 inch). Sensor should touch toner bottle (refer to Figure 2-52).

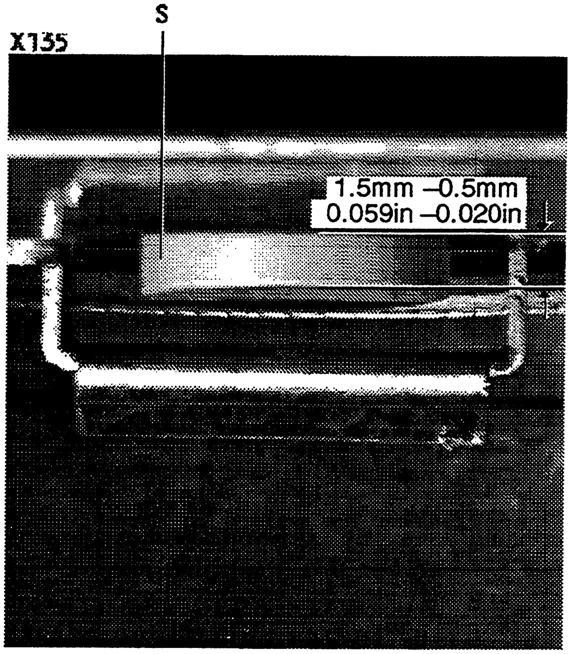


Figure 2-52. Replacement Toner Waste Bottle Sensor Adjustment

43G2. Toner Waste Bottle Sensor Adjustment. Estimated time to complete this procedure: 30 minutes.

a. Verify sensor position (refer to Routine 43G1).

b. Switch the main circuit breaker to ON. Power up the printer at the operator front panel.

c. Place an empty toner bottle into the toner waste container. Bottle must touch sensor.

If LED Lights:

1. Turn adjustment screw "J" clockwise until LED goes out (refer to Figure 2-51).
2. Turn adjustment screw "J" slowly counterclockwise until LED lights up.
3. Turn adjustment screw "J" an additional half turn counterclockwise.

If LED does not light:

1. Turn adjustment screw "J" slowly counterclockwise until LED lights up (refer to Figure 2-51).
2. Turn adjustment screw "J" an additional half turn counterclockwise.

d. Remove empty toner bottle from toner waste container.

e. Completely fill a toner bottle. Shake the bottle and refill it as often as necessary to ensure that it is as full as possible.

f. Place the full toner bottle into the toner waste container and observe that the LED must go out.

Note

IF the front panel TONERFULL message is incorrect:

1. Verify that the toner bottle is touching the sensor.
2. Clean the end of the sensor located inside the toner waste box container.
3. If the waste toner bottle is getting too full, and the fine filter is overly soiled, turn the adjustment screw 1/8 turn clockwise.

43H. Toner Waste Box

43H1. Toner Waste Box Removal and Replacement. Estimated time to complete this procedure: 1 hour.

a. Power down printer at operator panel; set the main circuit breaker to OFF.

b. Slide out the controller assembly from front of printer. Remove the upper side panel of printer. Open the left and center rear doors.

c. Loosen clamp "C2" and remove the tube (refer to Figure 2-53).

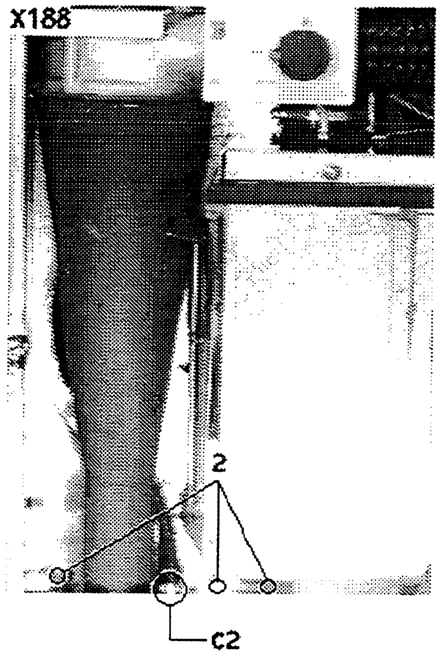


Figure 2-53. Toner Waste Box Removal and Replacement (1)

d. Disconnect the toner waste box sensor plug X83 (refer to Figure 2-51), accessible through side of printer.

e. Remove the toner waste bottle.

f. Remove the 4-Tx25 screws securing the flange on the top of the toner waste box assembly. Push the flange up and onto the bottom of the cyclonic separator, then push up the exposed O-ring.

g. Through the side of the printer, remove the 2-Tx30 screws "1" and 10 mm nuts (refer to Figure 2-54).

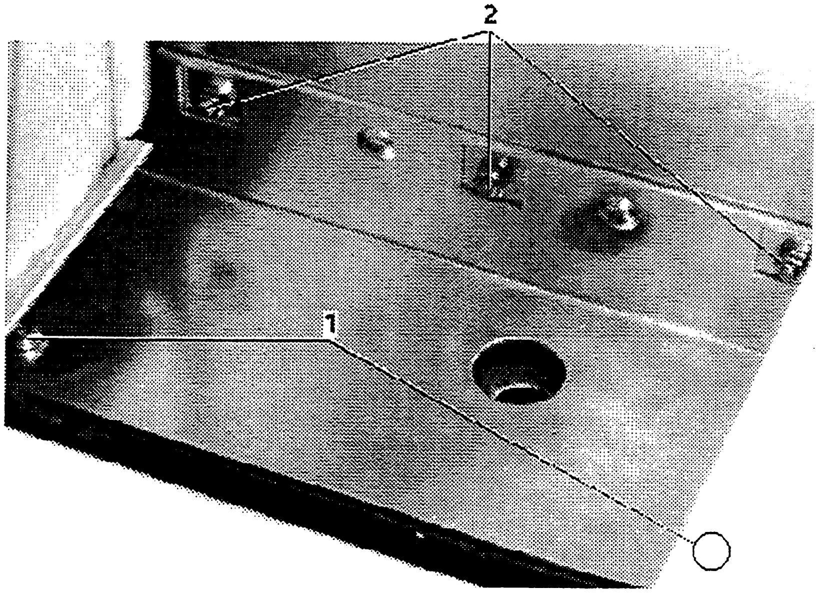


Figure 2-54. Toner Waste Box Removal and Replacement (2)

h. Remove the 3-Tx30 screws "2" and 10 mm nuts (refer to Figure 2-53).

i. Cautiously pull down the toner waste box from the cyclonic filter.

j. Install the replacement toner waste box in reverse removal order.

Note When replacing the toner waste box on the cyclonic filter, take care that the O-ring is not damaged.

43J. Cyclonic Filter

43J1. Cyclonic Filter Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Power down printer at operator panel; set the main circuit breaker to OFF.

b. Slide out the controller assembly from the front of the printer. Remove the upper side panel of printer. Open the left and center rear doors.

c. Loosen the 6 clamps “C1” (refer to Figure 2-55) and pull the tubes loose.

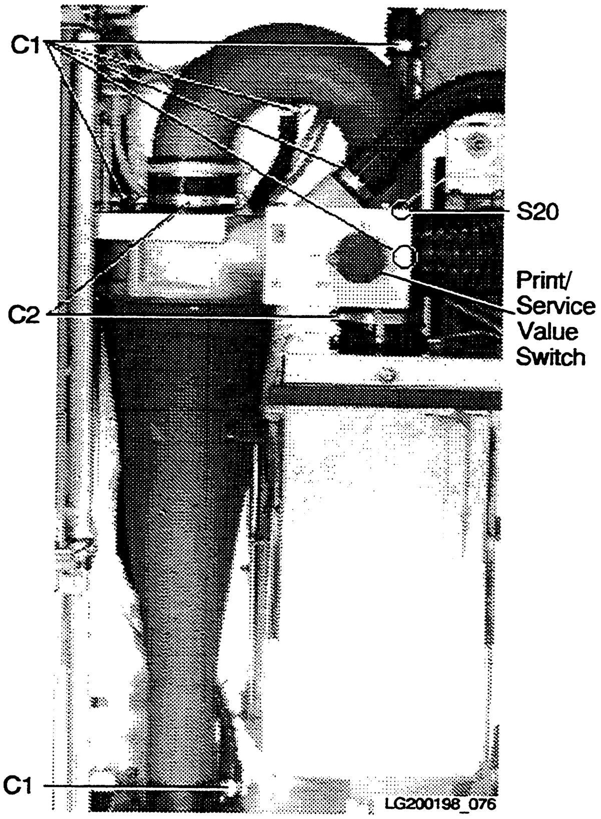


Figure 2-55. Cyclonic Filter Removal and Replacement (1)

d. Loosen the 2 clamps “C2” (refer to Figure 2-55) and remove 3-inch diameter plastic pipe.

e. Remove the 2 white vacuum tubes from the vacuum sensor PCA. Label the tubes accordingly.

f. Pull off the clear plastic connector on the top of switch S20 (Print/Service valve switch) (refer to Figure 2-55).

g. Remove the 4-Tx25 screws securing the flange on the top of the toner waste box assembly. Push the flange up and onto the bottom of the cyclonic separator, then push up the exposed O-ring.

h. Remove the 4-Tx25 screws "1" and the 4-Tx25 screws "2" (refer to Figure 2-56) from the side of the printer securing top brace of cyclonic filter.

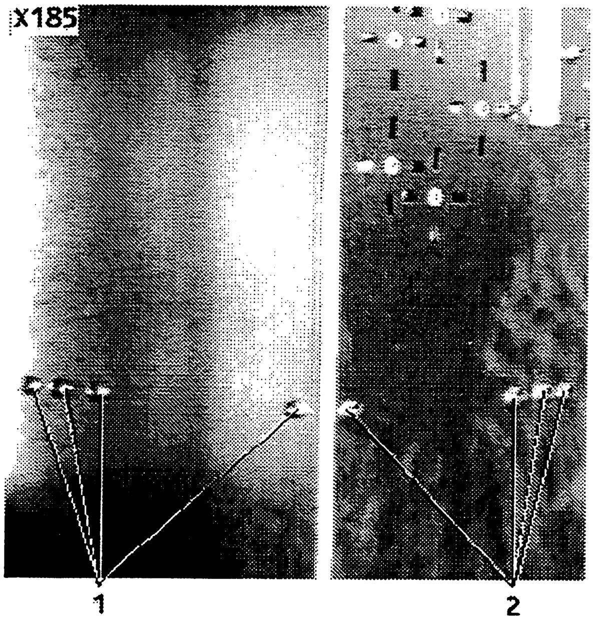


Figure 2-56. Cyclonic Filter Removal and Replacement (2)

i. Remove 3-Tx25 screws on top of cyclonic filter (securing filter to brace).
j. While holding filter, lift off top brace and set to the side.
k. Lower handle of fine filter assembly and lift cyclonic filter up and out of printer.
l. Install the replacement cyclonic filter in reverse removal order.

Note

When replacing the toner waste box on the cyclonic filter, take care that the O-ring is not damaged.

43K. Fine Filter Housing

43K1. Fine Filter Box Removal and Replacement. Estimated time to complete this procedure: 45 minutes.

a. Power down printer at operator panel; set the main circuit breaker to OFF. Open the center and left rear doors.

b. Cautiously pull off the lower white vacuum tube "U1" by pressing together clamp "H1" (refer to Figure 2-57).

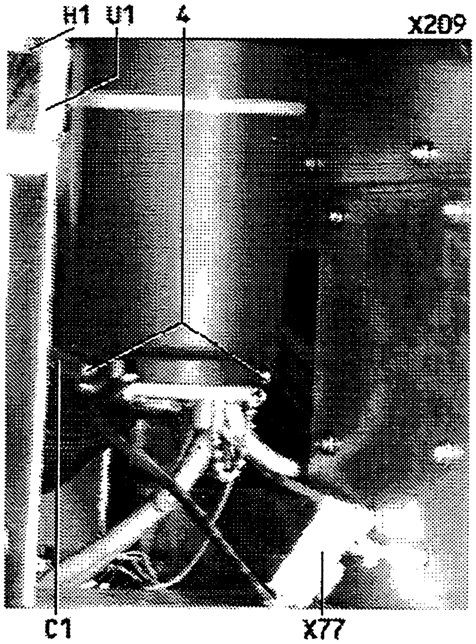


Figure 2-57. Fine Filter Removal and Replacement (1)

c. Disconnect plug X77 of the fumes sensor (refer to Figure 2-57).

d. Unlock and pull out the fine filter box.

e. Remove fine filter.

f. With fine filter box opened and extended outward, loosen clamp "C1" on the rear of the filter box, and pull off the 3 inch (76 mm) diameter tube going to the vacuum assembly (refer to Figure 2-57).

g. Remove the fine filter box by positioning large holes of sliding rail slots (on both sides box) over guides. Pull supporting framework away from box allowing guides to be released from rail slots.

h. Install the replacement fine filter box in reverse removal order.

43K2. Fine Filter Cap Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Power down printer at operator panel; set the main circuit breaker to OFF. Open the center and left rear doors.

b. Slide out the controller assembly from the front of the printer. Remove the upper side panel of printer.

c. Swing open the panel cover above the developer station. Remove the single Tx20 screw and disconnect ground cable "M" from casting "G" (refer to Figure 2-58).

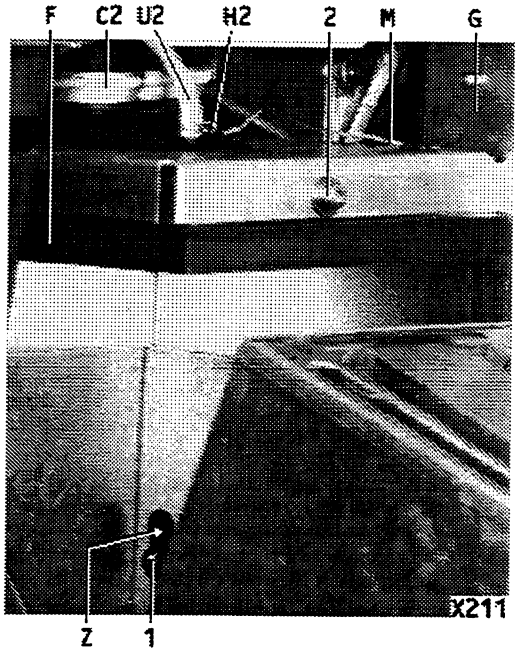


Figure 2-58. Fine Filter Removal and Replacement (2)

d. Carefully remove the white vacuum tube "U2" by pressing together clamp "H2" (refer to Figure 2-58).

e. Loosen clamp "C2" (refer to Figure 2-58).

f. Remove single Tx30 screw "3" (refer to Figure 2-59). Screw "3" is located through a hole accessible from the side of the printer.

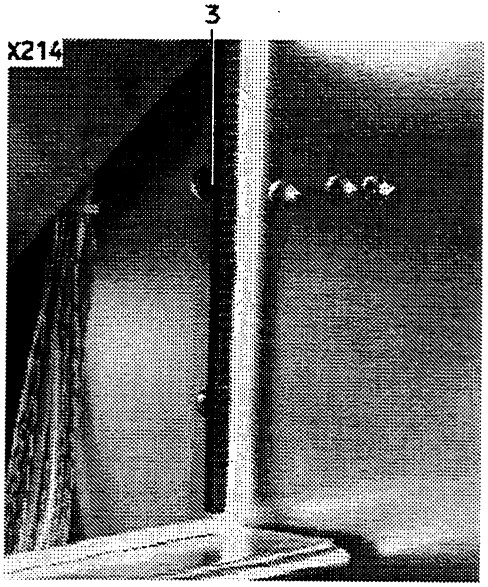


Figure 2-59. Fine Filter Removal and Replacement (3)

g. Remove single Tx30 screw “2” (refer to Figure 2-58).

h. Pull the fine filter cap “F” downwards and out of the printer (refer to Figure 2-58).

i. Install the replacement fine filter cap in reverse removal order.

43L. Fumes Sensor

43L1. Fumes Sensor Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Remove the fine filter box (refer to Routine 43K1).

b. Remove the 2-Tx20 screws “4”; then remove the fumes sensor from the fine filter box (refer to Figure 2-57). Pushing outward on sensor from inside of filter box may help if sensor is stuck.

c. Install the replacement fumes sensor in reverse removal order.

Caution

- Take care not to damage the O-ring.
- Do not over tighten screws “4” or damage to the sensor could result.

43M. Vacuum Pump Assembly

43M1. Vacuum Pump Removal and Installation (Old Style). Estimated time to complete this procedure: 30 minutes.

Note Two people are required to do this procedure.

---

a. Power down printer at operator panel; set the main circuit breaker OFF.

b. Slide out the controller assembly from the front of the printer. Remove the upper side panel of printer.

c. Remove the lower front panel of the printer (below the controller) by removing the 2-Tx20 screws and lifting the panel up and away from the frame.

d. Slide out the insulating foam "P" (refer to Figure 2-60).

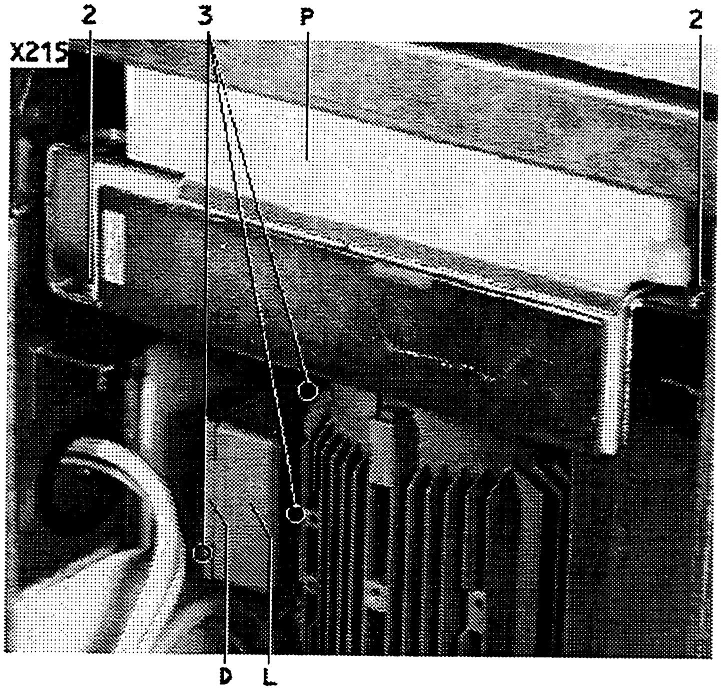


Figure 2-60. Vacuum Pressure Assembly, Front View, Old Style

e. Lower fine filter box, from back of printer, and slide outward.

f. From side of printer, loosen clamp "C" and separate tube "T" from elbow "K" (refer Figure 2-61).

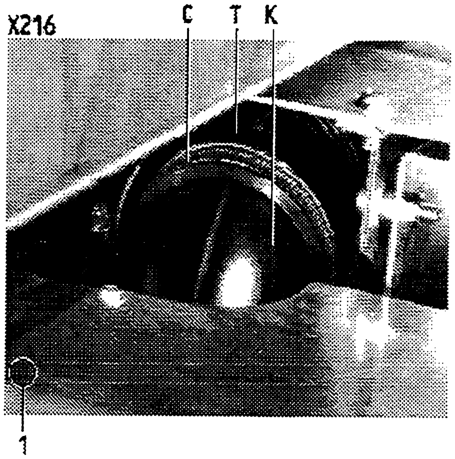


Figure 2-61. Vacuum Pressure Assembly Removal and Replacement (1)

g. With a 13 mm socket remove bolt "1" (refer to Figure 2-61). Using a 13 mm open end wrench, remove 3 bolts "2" (refer to Figure 2-60 and Figure 2-62).

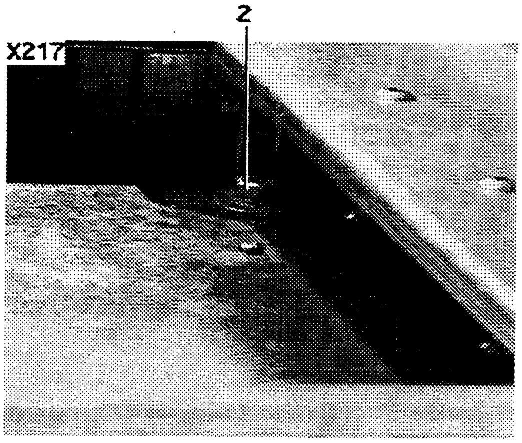


Figure 2-62. Vacuum Pressure Assembly Removal and Replacement (2)

h. Pull out the vacuum pump assembly about half way. Remove the connection box cover "D". Label the wires as to where they belong.

i. Disconnect the 2 cables from the motor connection box.

j. With 2 people remove the vacuum pump from the printer.

k. Install the replacement vacuum pump in reverse removal order (refer to Routine 43M2 if installing new style assembly).

43M2. Vacuum Pump Removal and Installation (New Style). Estimated time to complete this procedure: 1.5 hours.

Tools required:

- HELPU
- 13 mm wrench

Warning **This routine requires two people, because the vacuum assembly weighs approximately 75 pounds (34 kg) and is awkward to maneuver in and out of the printer.**

---

a. Power down printer at operator panel; set the main circuit breaker OFF.

b. Slide out the controller assembly from the front of the printer. Remove the upper side panel of the printer.

c. Remove the lower front panel of the printer (below the controller) by removing the 2-Tx20 screws and lifting the panel up and away from the frame.

d. Remove blank side panel "A" (refer to Figure 2-63).

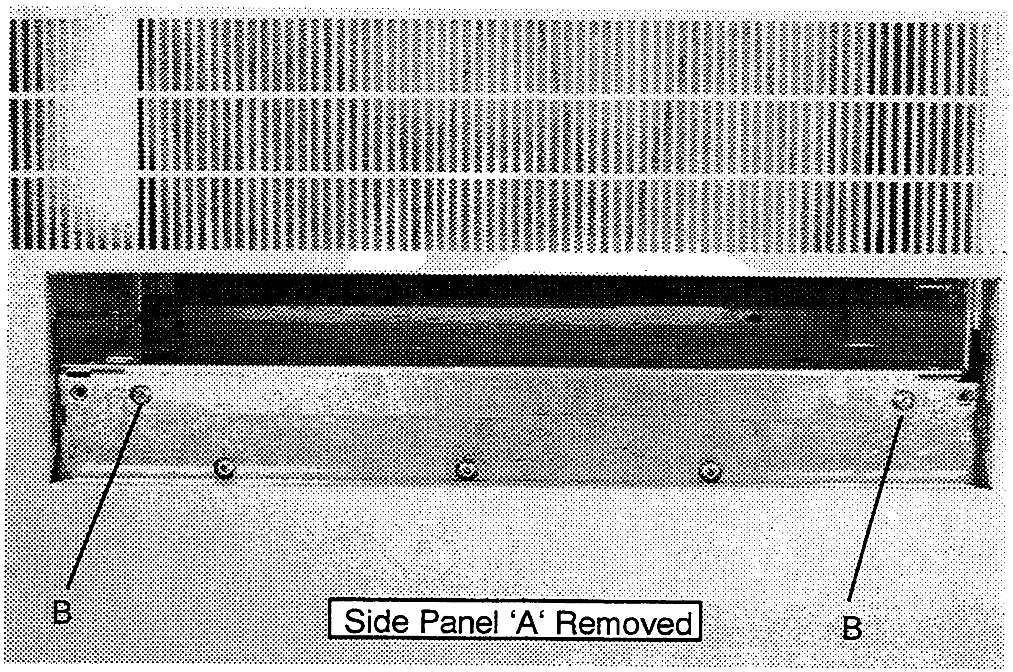


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Figure 2-63. Vacuum Pump Removal and Installation (New Style Assembly) (1)

e. Remove 2-Tx30 screws "B" securing the sheet metal cover above the vacuum assembly. Remove the cover (refer to Figure 2-63).

f. Loosen hose clamp "C" and "D" securing hoses to vacuum assembly. Slide both hoses off of their flange (refer to Figure 2-64).

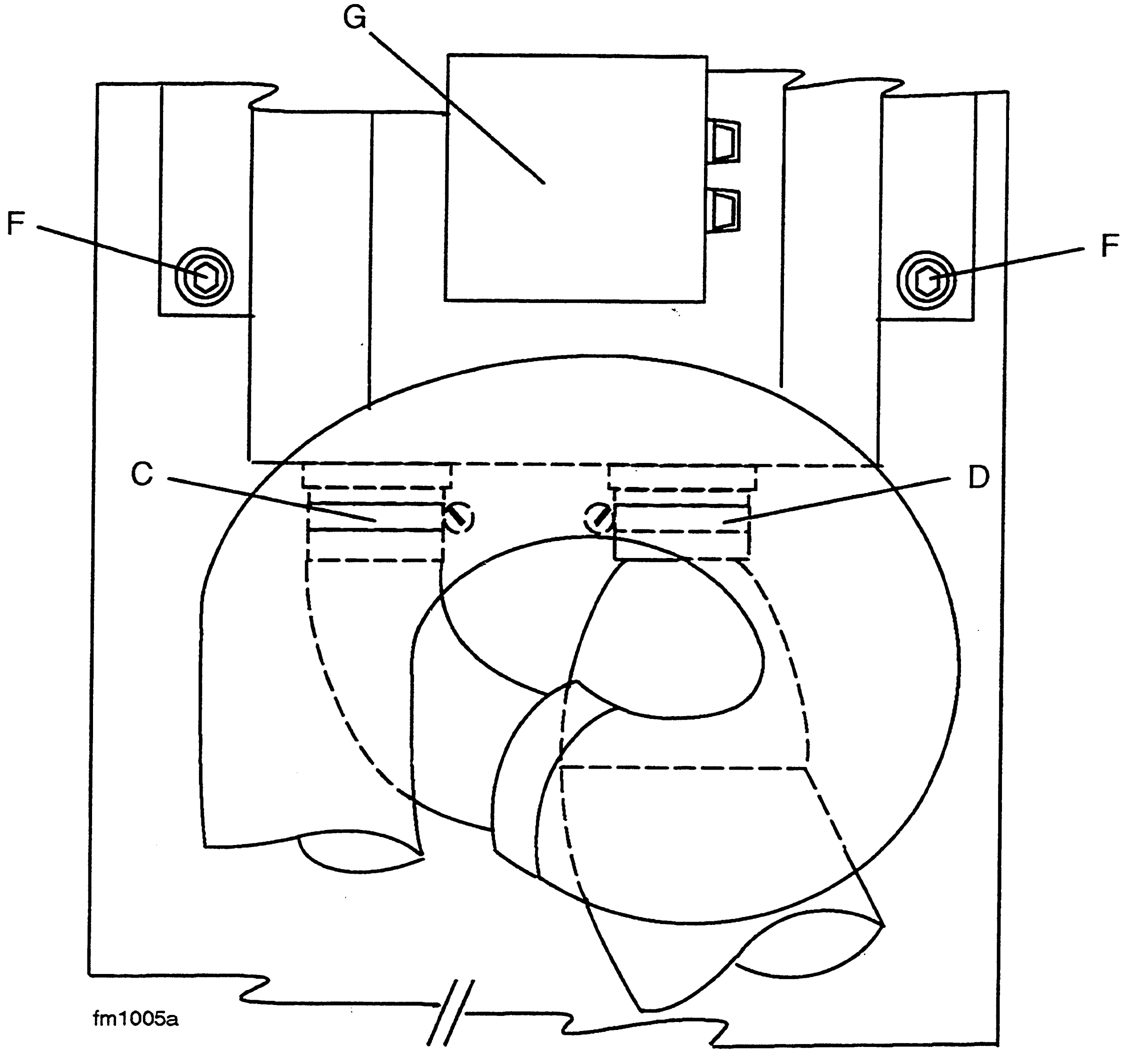


Figure 2-64. Vacuum Pump Removal and Installation (New Style Assembly) (2)

g. Remove connection box cover "G" from motor (refer to Figure 2-64).

h. Label power wires and terminals for re-assembly later; this is important for proper motor rotation. Disconnect power wires from motor.

i. Disconnect the two cables from the motor connection box.

j. Remove the 2-13 mm rear mounting bolts "F" from the base of the vacuum assembly, (refer to Figure 2-64).

k. From the front of the printer, remove the 2-13 mm mounting bolts "E" from the base of the vacuum assembly, (refer to Figure 2-65).

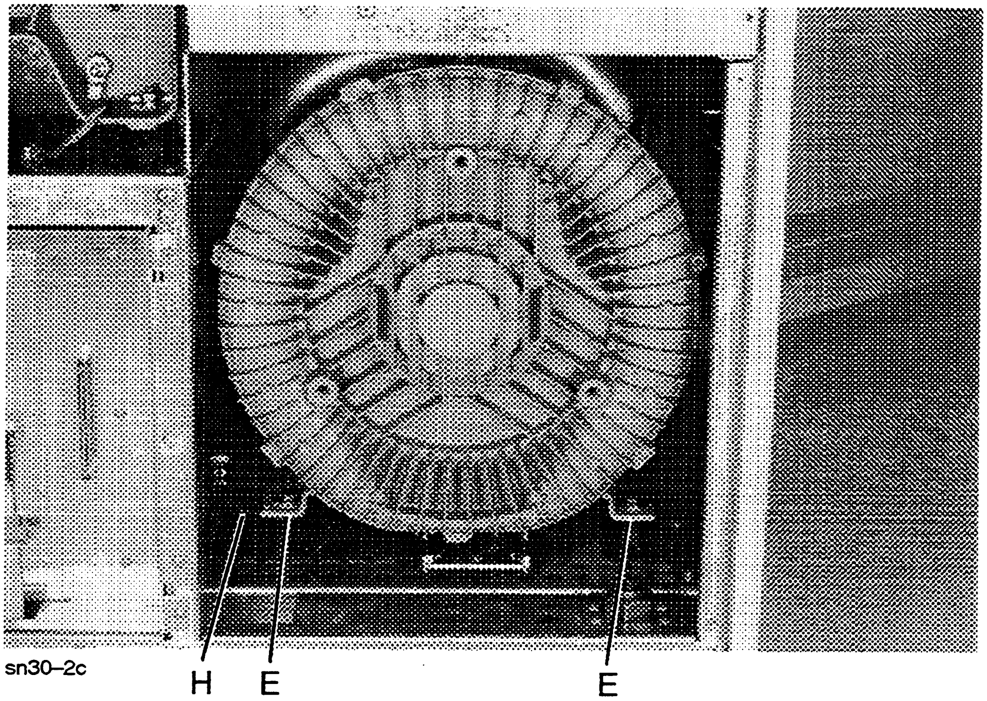


Figure 2-65. Vacuum Pump Removal and Installation (New Style Assembly) (4)

l. Carefully remove vacuum out through the front of the printer.

m. Install and secure new vacuum assembly inside printer. Be sure to connect ground wire "H" to assembly's base (refer to Figure 2-65 and Figure 2-66).

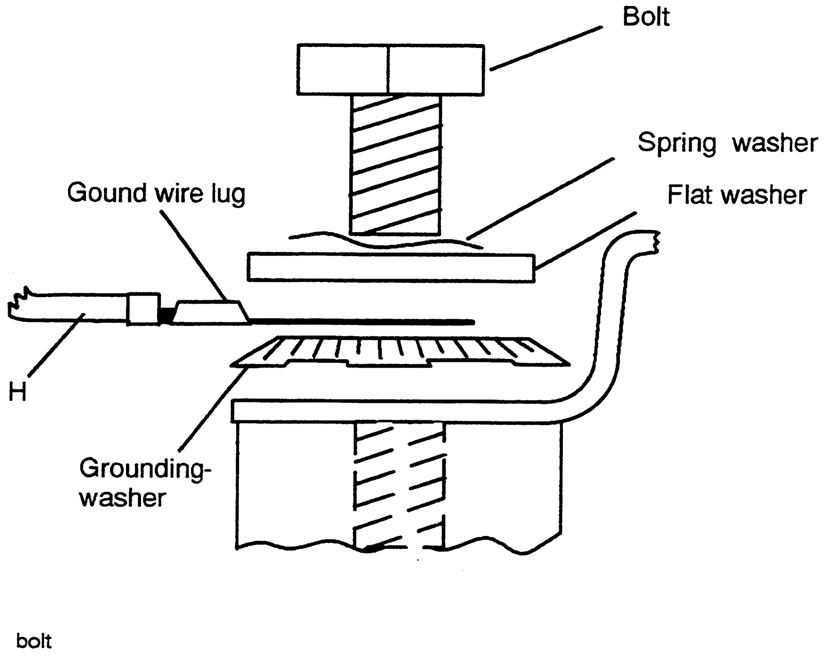


Figure 2-66. Vacuum Pump Removal and Installation (New Style Assembly) (5)

n. Attach the two cables to the motor and secure wires to the proper connection terminals, (refer to Figure 2-64).

o. Install cover "G".

Caution After all electrical connections have been secured, the motor connection box cover has been installed, and the two hoses have not yet been attached to the assembly, it is important to complete the next step. This will verify correct motor rotation.

Failure to do so may result in a severe toner and developer spill.

---

p. Power ON the printer. Using HELPU, switch the vacuum system ON and OFF. Verify exhaust air at port "C" and intake of air at port "D". If exhaust and intake are wrong, power OFF the printer and interchange any two of the three phases under cover "G" (refer to Figure 2-64). If exhaust and intake are correct, continue to next step.

q. Attach hoses to corresponding flanges and tighten hose clamps.

r. Finish assembling remainder of printer.

43N. Vacuum Sensor PCA

43N1. Vacuum Sensor PCA Removal and Replacement. Estimated time to complete this procedure: 15 minutes.

a. Power down printer at the operator panel; set the main circuit breaker to OFF. Open the center and left rear doors.

b. Disconnect plug X76 from the vacuum sensor PCA (refer to Figure 2-67).

c. Cautiously pull off the 2 white tubes "U1" and "U2" by pressing together clamps "H" (refer to Figure 2-67). Label tubes accordingly.

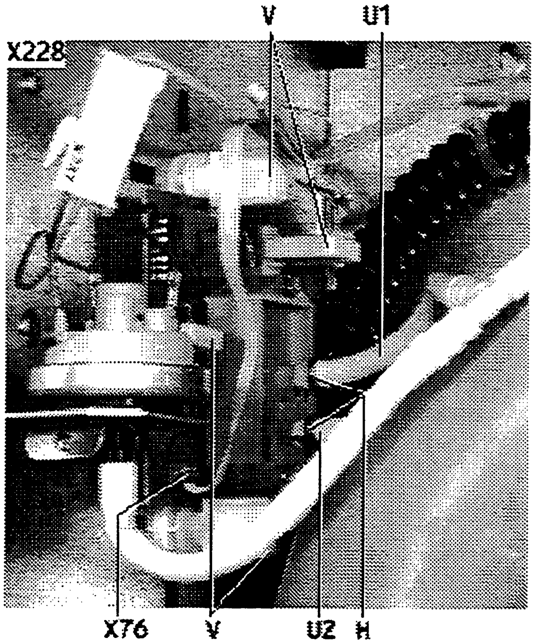


Figure 2-67. Vacuum Sensor PCA Removal and Replacement

d. Open locks "V" and remove the PCA.

e. Install the replacement PCA in reverse removal order.

43P. Vacuum System

43P1. Static Vacuum Presure Measurement. This routine describes how to measure the static vacuum presure between the vacuum pressure fan and the fine filter.

Note For this measurement, a new fine filter must be installed.

a. Do Routine 43P3.

b. By pressing clamp "H1," cautiously remove the upper vacuum pressure tube "U1" from the vacuum pressure sensor and place it on the end of the T-adapter "T" (refer to Figure 2-68 and Figure 2-69).

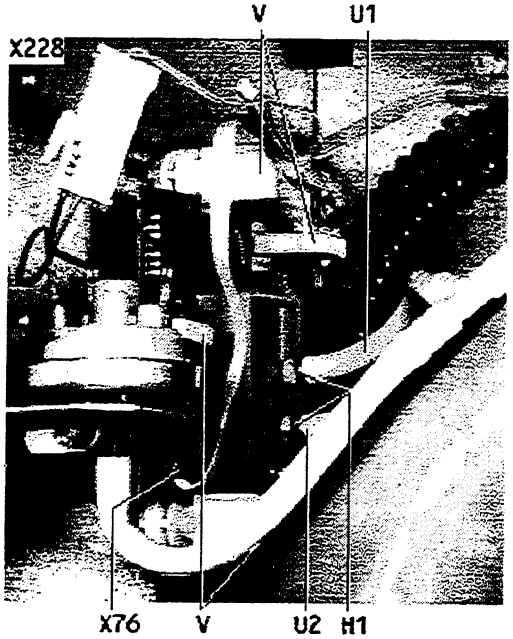


Figure 2-68. Measurement of Static Vacuum Pressure (1)

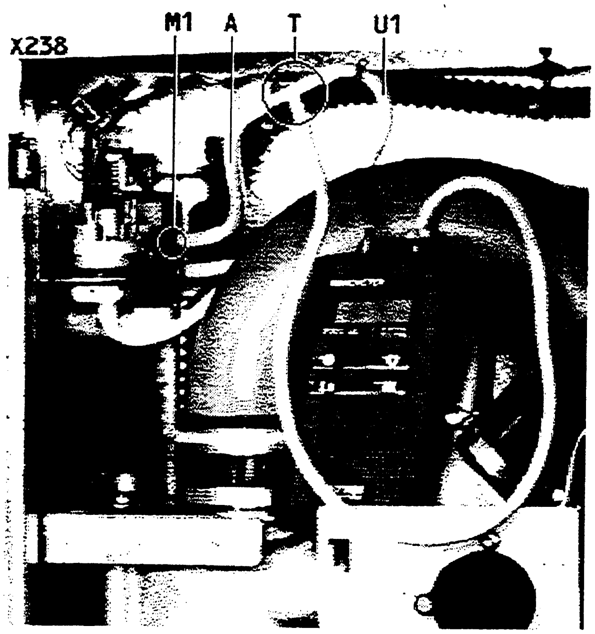


Figure 2-69. Measurement of Static Vacuum Pressure (2)

c. Connect the adapter tube “A” from the other end of the T-adapter “T” to the upper connector on the vacuum pressure sensor “M1” (refer to Figure 2-69).

d. Connect the vacuum pressure measurement device to the T-adapter “T” (refer to Figure 2-69).

e. Using HELPU, turn on the Vacuum Pressure Fan (Main Menu, Check/Test Functions, Basic Unit, Switch Units, Vacuum Motor). If HELPU is not available, run submodule print (Menu 4.6.0, test 118, value 02H).

f. Remove vacuum pressure tube “U3” and grip “G” from the toner box; manually seal the opening (refer to Figure 2-70 and Figure 2-71). The vacuum pressure should be between 54 mbar and 66 mbar (21.6 to 26.5 inches of water). If the vacuum pressure is less than 54 mbar (21.6 inches of water), check the vacuum system for leaks.

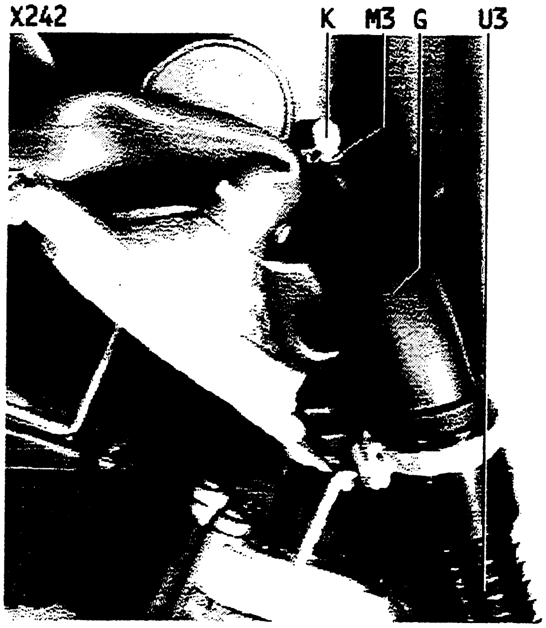


Figure 2-70. Measurement of Static Vacuum Pressure (3)

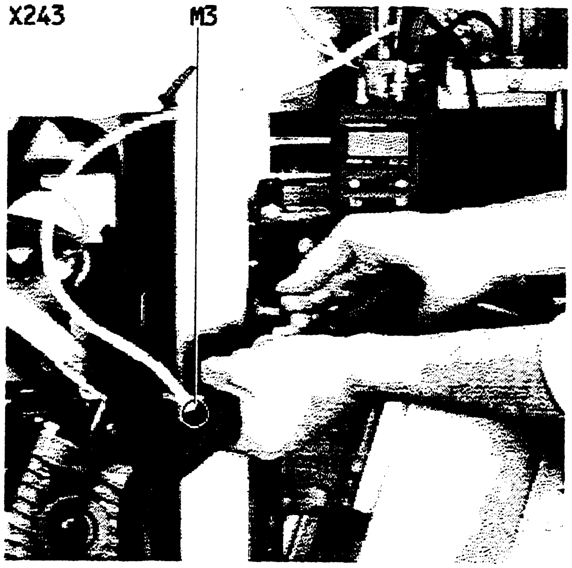


Figure 2-71. Measurement of Static Vacuum Pressure (4)

g. Remove T-adapter and reconnect vacuum tubes.

43P2. Fine Filter Static Vacuum Pressure Measurement.

Note For this measurement, a new fine filter must be installed.

a. Do Routine 43P1 and note measured value.

b. By pressing clamp "H1", cautiously remove the lower vacuum pressure tube"U2" from the vacuum pressure sensor and place on the end of the T-adapter "T" (refer to Figure 2-68 and Figure 2-72).

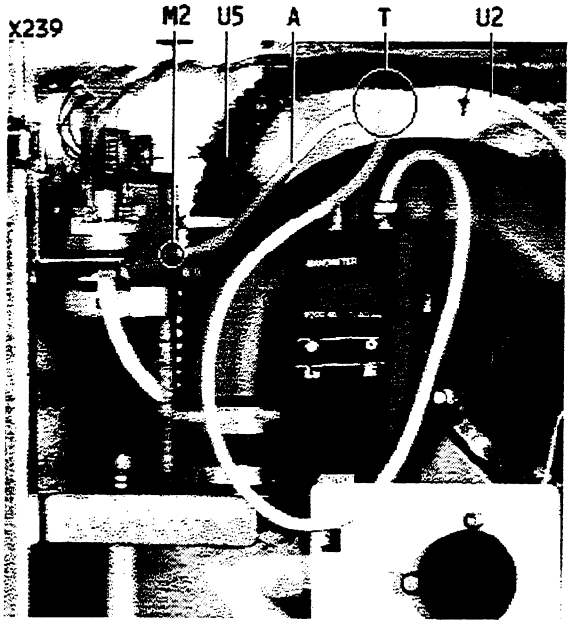


Figure 2-72. Measurement of Static Vacuum Pressure (5)

c. Connect the adapter tube "A" from the other end of the T-adapter "T" to the lower connector on the vacuum pressure sensor "M2" (refer to Figure 2-72).

d. Connect the vacuum pressure measurement device to the T-adapter "T" (refer to Figure 2-72).

e. Using HELPU, turn the Vacuum Pressure Fan (Main Menu, Check/Test Functions, Basic Unit, Switch Units, Vacuum Motor). If HELPU is not available, run submodule print (Menu 4.6.0, test 118, value 02H).

f. Remove vacuum pressure tube "U3" with grip "G" from the toner box and manually seal the opening (refer to Figure 2-70 and Figure 2-71). The pressure difference measured and that recorded from Routine 43P1 must be equal to or less than 3 mbar (1.2 inches of water).

g. Remove the T-adapter and reconnect vacuum tubes.

43P3. Measurement of Vacuum Pressure in Front of Toner Box.

Note For this measurement, a new fine filter must be installed.

a. Open doors on drive side.

b. Remove vacuum pressure tube “U3” with grip “G” from toner box (refer to Figure 2-70).

c. Remove cap “K” from test connector “M3” at grip “G” (refer to Figure 2-70).

d. Connect the vacuum pressure measurement device to test connector “M3” (refer to Figure 2-71).

e. Using HELPU, turn on the vacuum pressure fan (Main Menu, Check/Test Functions, Basic Unit, Switch Units, Vacuum Motor). If HELPU is not available, run submodule print (Menu 4.6.0, test 118, value 02H).

Note Vacuum switch “D” must be in the PRINT position.

f. Manually seal the suction opening (refer to Figure 2-71).

g. The vacuum measured for the non-adjustable valve must be between 38 mbar and 45 mbar (15.2 to 18 inches of water) (refer to Figure 2-73).

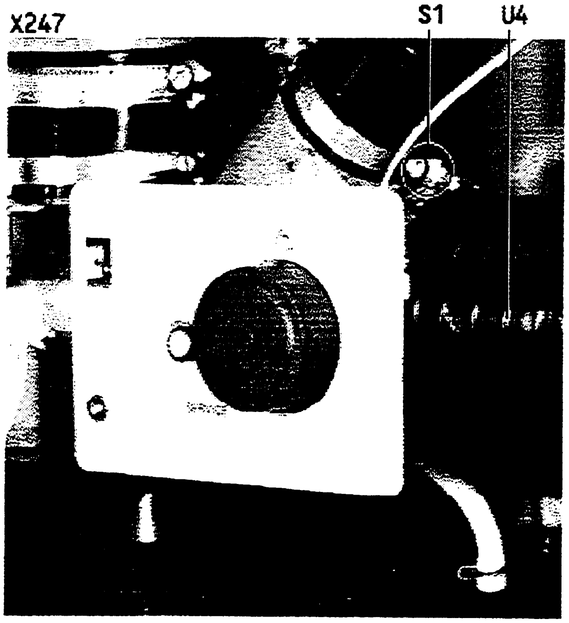


Figure 2-73. Measurement of Static Vacuum Pressure (6)

Adjustment:

- Loosen clamp “S1” and remove vacuum hose “U4” (refer to Figure 2-73).

- Adjust for the proper vacuum by cautiously bending the upper part of the valve "F" to the rear to increase the pressure, or to the front to decrease the pressure (refer to Figure 2-74).

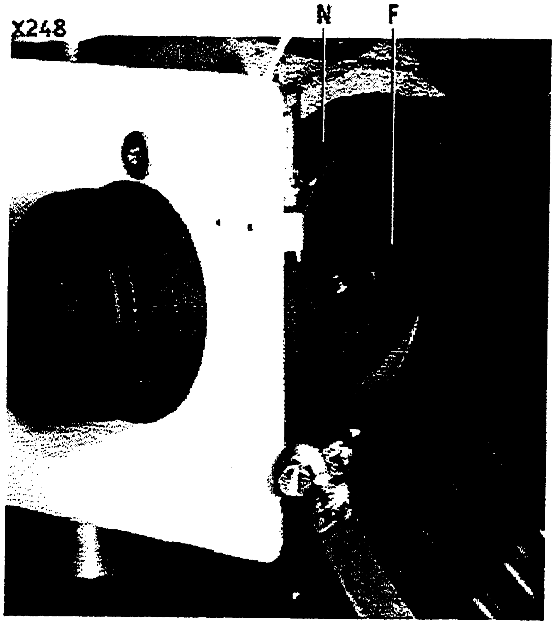


Figure 2-74. Measurement of Static Vacuum Pressure (7)

h. The vacuum measured for the adjustable valve must be between 38 mbar and 40 mbar (15.2 to 16 inches of water) (refer to Figure 2-75).

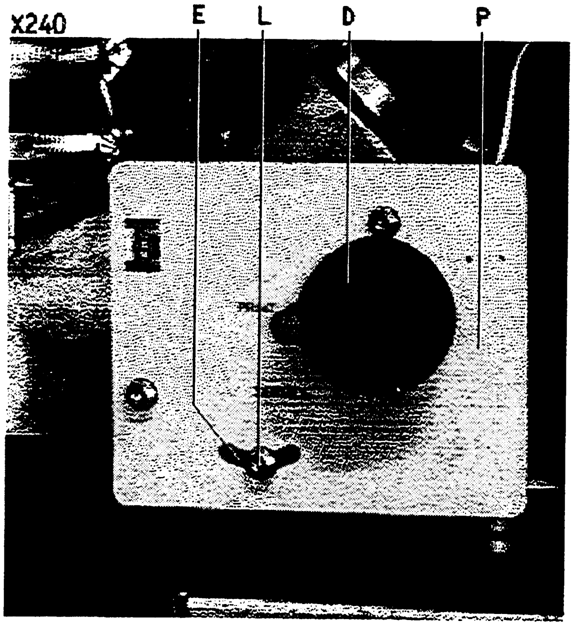


Figure 2-75. Measurement of Static Vacuum Pressure (8)

Adjustment:

- Loosen screw "L" and adjust for proper vacuum by cautiously moving bracket "E" behind plate "P" (refer to Figure 2-75). To the right increases vacuum pressure; to the left decreases vacuum pressure.

i. Reassemble in reverse order.

Charge/Discharge Corotron Assemblies

Routine 44

44A. Charge Corotron Assembly

44A1. Charge Corotron Cartridge Removal and Replacement. Estimated time to complete this procedure: 5 minutes.

Note Corotron cartridges "K" (refer to Figure 2-76) can be replaced without removing the corotron assembly.

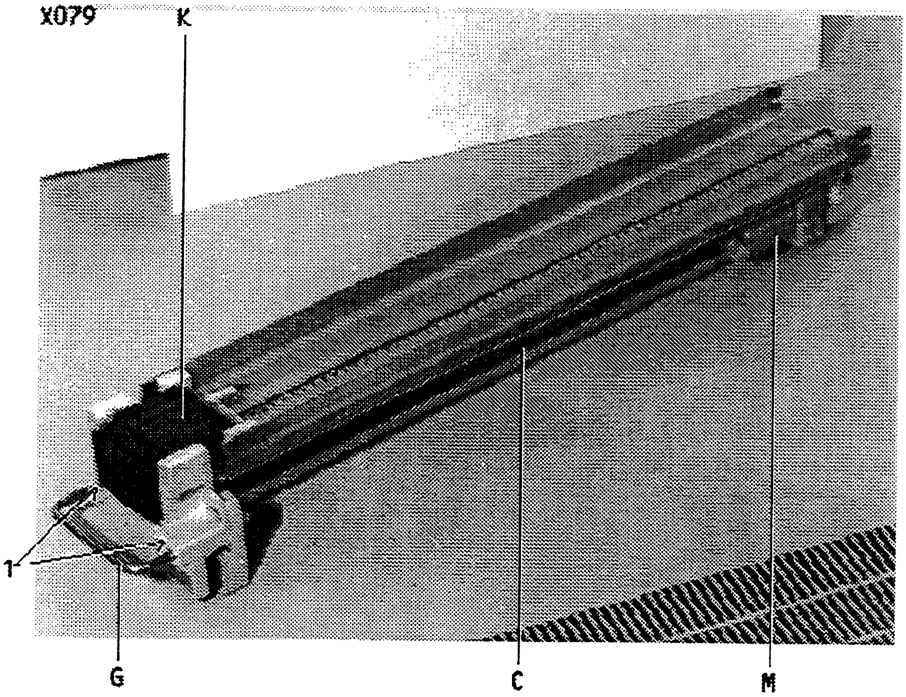


Figure 2-76. Corotron Assembly Removal and Replacement (1)

a. Retract the corotron wires via the operator panel menu: Select 3.2, and press ENTER.

b. Pull out handle "G" and press to the right to unlock the cartridges (refer to Figure 2-76).

c. Remove the 6 corotron cartridges by pulling straight out.

d. Install the replacement cartridges by pushing straight in until they click.

e. Return handle "G" back to the left to lock the cartridges in place.

f. Extend the corotron wires by answering the operator panel menu questions.

Note Replying *YES* to the question *CHANGED?___*, resets the printer internal print counter for ALL cartridges. If all of the cartridges were not replaced, it is best to reply *NO* to the question. If all the cartridges were just replaced, for example during a PM, then reply *YES*.

---

g. After replacing the corotron cartridges, clean the corotron wires 3 times per Menu 5.5

44A2. Charge Corotron Assembly Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Retract the corotron wires via operator panel (Menu 3.2).

b. Power OFF the printer.

c. Remove the PC drum (refer to Routine 41A1).

d. Loosen the 2 captive screws "1" shown in Figure 2-76).

e. Pull out the station with handle "G" (refer to Figure 2-76).

Caution When the corotron assembly is out of the printer, do not set it down so that it rests on connectors X32A/B. Locate the corotron as shown in Figure 2-77).

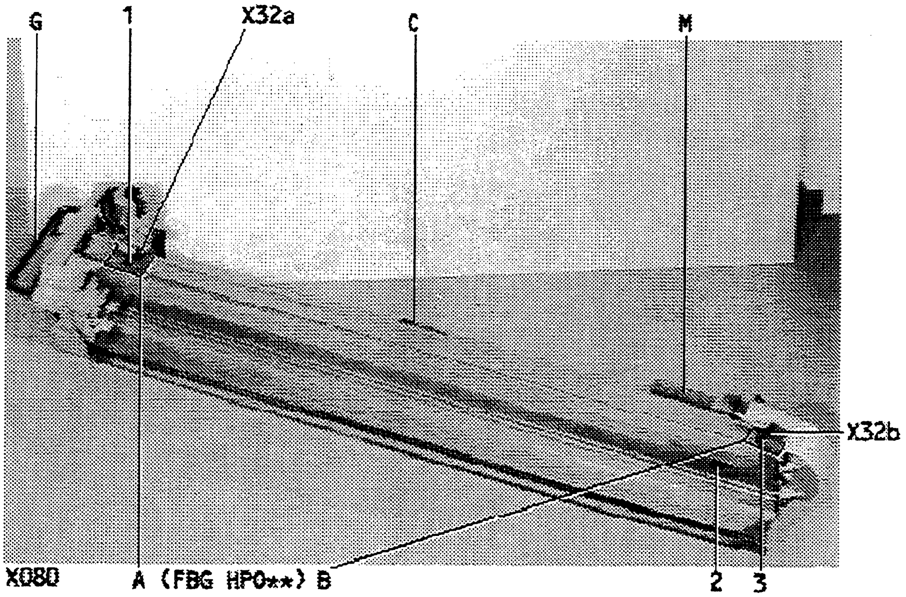


Figure 2-77. Corotron Assembly Removal and Replacement (2)

f. Install the replacement corotron assembly in reverse removal order. Make sure to properly seat the corotron assembly in the guide rails before sliding it back.

44A3. Charge Corotron Motor Removal and Replacement. Estimated time to complete this procedure: 15 minutes.

a. Remove the charge corotron assembly (refer to Routine 44A2).

b. Remove the cable channel cover "C" (refer to Figure 2-76 and Figure 2-77).

c. Disconnect connector X11.

d. Remove the 2-Tx20 screws "2" and remove the motor (refer to Figure 2-77).

e. Install the replacement motor in reverse removal order.

44A4. HPO Sensor PCA Removal and Replacement. Estimated time to complete this procedure: 15 minutes.

a. Remove the charge corotron assembly. (refer to Routine 44A2).

b. Disconnect connector X32a from the PCA (refer to Figure 2-77).

c. Remove the single Tx10 screw "1" that attaches the PCA. Remove the PCA.

d. Install the replacement PCA in reverse removal order.

44B. Discharge Corotron Assembly

44B1. Discharge Corotron Cartridge Removal and Replacement. Refer to Routine 44A1. The procedure to remove and replace both the charge and discharge corotron cartridges is the same.

44B2. Discharge Corotron Assembly Removal and Replacement. Refer to Routine 44A2. The procedure to remove and replace both the charge and discharge corotron assemblies is the same, with one exception. Instead of 2 slot head screws "1" (refer to Figure 2-76), only one is used on the discharge corotron.

44B3. Discharge Corotron Motor Removal and Replacement. Refer to Routine 44A3. The procedure to remove and replace both the charge and discharge corotron motors is the same.

44B4. HPO Sensor PCA Removal and Replacement. Refer to Routine 44A4. The procedure to remove and replace both the charge and discharge HPO sensor PCAs.

PCD Cleaning Area

Routine 45

45A. Cleaning Brush Assembly

45A1. Cleaning Brush Drive Motor Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Power down printer at operator panel; set the main circuit breaker to OFF.

b. Open the rear doors of printer; remove panel cover above developer station (4 mm Allen).

c. Disconnect connector X54 (refer to Figure 2-78).

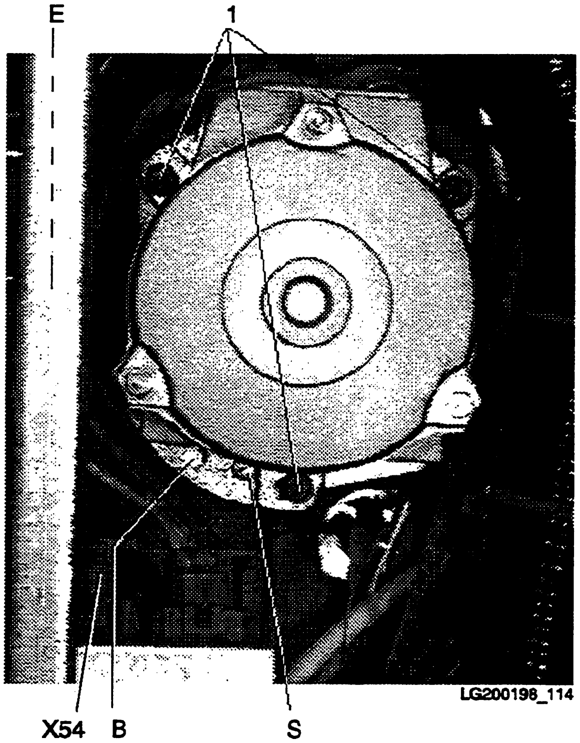


Figure 2-78. Brush Drive Motor Removal and Replacement (1)

d. Remove the Tx20 screw that attaches the ground cable “E” from the motor housing (refer to Figure 2-78).

e. Remove the 3-Tx25 screws “1” that attach the motor to the printer. Gently wiggle the motor while gently pulling out on it; remove the motor (refer to Figure 2-78).

f. If the plastic gear cover came out with the motor, remove it and reinstall it on the printer.

g. Lubricate the motor gear with General Lubricant (HP part number 00183920-SNI).

h. Install the replacement motor in reverse removal order.

Note

Take care to install screw "S" Figure 2-78 at the proper location, as follows:

- For 60 Hz printers, install screw "S" in hole "S".
- For 50 Hz printers, install screw "S" in hole "B".

45A2. Brush Drive Assembly Removal and Replacement. Estimated time to complete this procedure: 1 hour.

a. Remove the brush drive motor (refer to Routine 45A1).

b. Remove the plastic gear cover if still attached to the printer.

c. Remove the brush cover assembly and cleaning brush from the front of the printer. Remove the PC drum.

d. From the rear of the printer, remove 3-Tx23 screws "2" (refer to Figure 2-79).

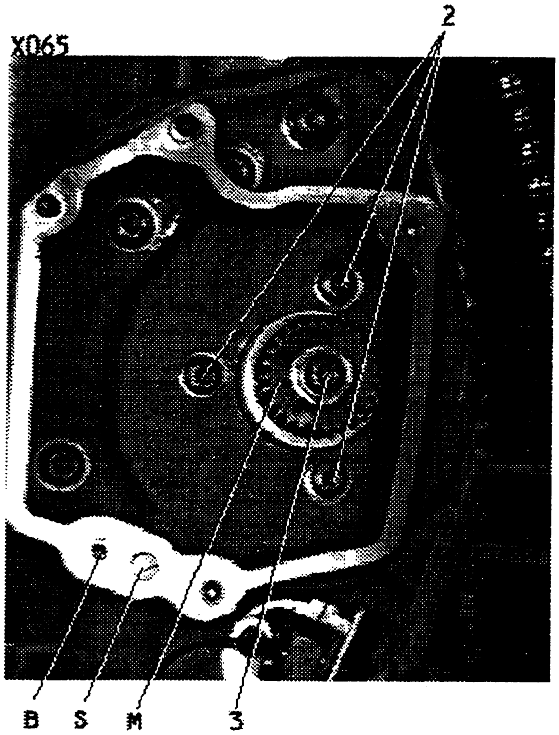


Figure 2-79. Brush Drive Motor Removal and Replacement (2)

e. From the front of the printer, carefully reach through the printer and pull the rear drive assembly out.

Note

If the drive assembly is disassembled, be sure to note the arrangement of the spring washers, so that the drive assembly can be correctly reassembled (refer to the *Model F100 Parts Catalog*, HP part number C2750-90106, for the proper orientation.

f. Install the reassembled or replacement drive assembly in reverse removal order.

45B. Green LED Strip

45B1. Green LED Strip Removal and Replacement. Estimated time to complete this procedure: 15 minutes.

a. Power down printer at operator panel; set the main circuit breaker to OFF.

b. Open the rear doors of printer; remove panel cover plate above developer station (4 mm Allen).

c. From the rear of the printer, disconnect connector X13 located below the cleaning brush drive motor (refer to Figure 2-80).

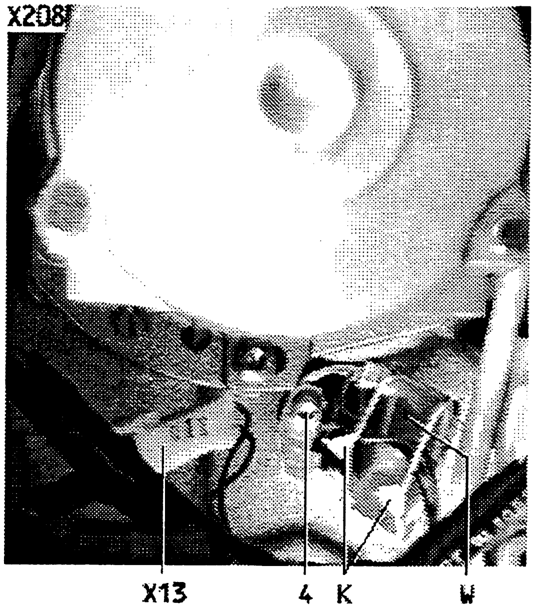


Figure 2-80. Green LED Strip Removal and Replacement

d. Loosen the captive slotted screw “4” (refer to Figure 2-80).

e. Pull out the LED strip including bracket “W” (refer to Figure 2-80).

f. Install the replacement LED strip in reverse removal order.

Paper Input Area

Routine 51

51A. Paper Out Sensor

51A1. Paper Out Sensor Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Power down printer at the operator panel; set the main circuit breaker to OFF.

b. Remove the 4-Tx25 screws "A" that attach the panel on the right side of the paper input area. Slide panel out of the way (refer to Figure 2-37).

c. Disconnect connector X78b (refer to Figure 2-81).

d. Remove the 2-Tx20 screws that attach sliding bracket "W" to the printer frame.

e. Remove the 2-Tx10 screws "2" that attach the sensor to the sliding bracket (refer to Figure 2-81).

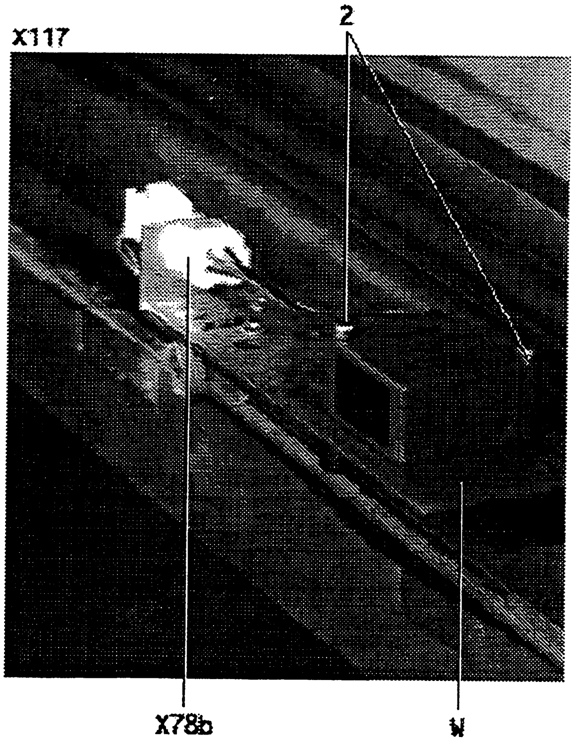


Figure 2-81. Paper Out Sensor (1)

f. Install the replacement sensor in reverse removal order.

g. Proceed to Routine 51A2, Paper Out Sensor Alignment.

51A2. Paper Out Sensor Alignment. Estimated time to complete this procedure: 30 minutes.

Note Verification of proper alignment should be checked if the sensor has been removed or false paper out messages are occurring.

---

a. With the printer powered ON, remove any paper supply from the paper input area.

b. Verify that the small LED, on the face of the sensor, does not illuminate when no paper is blocking the reflector (refer to Figure 2-82).

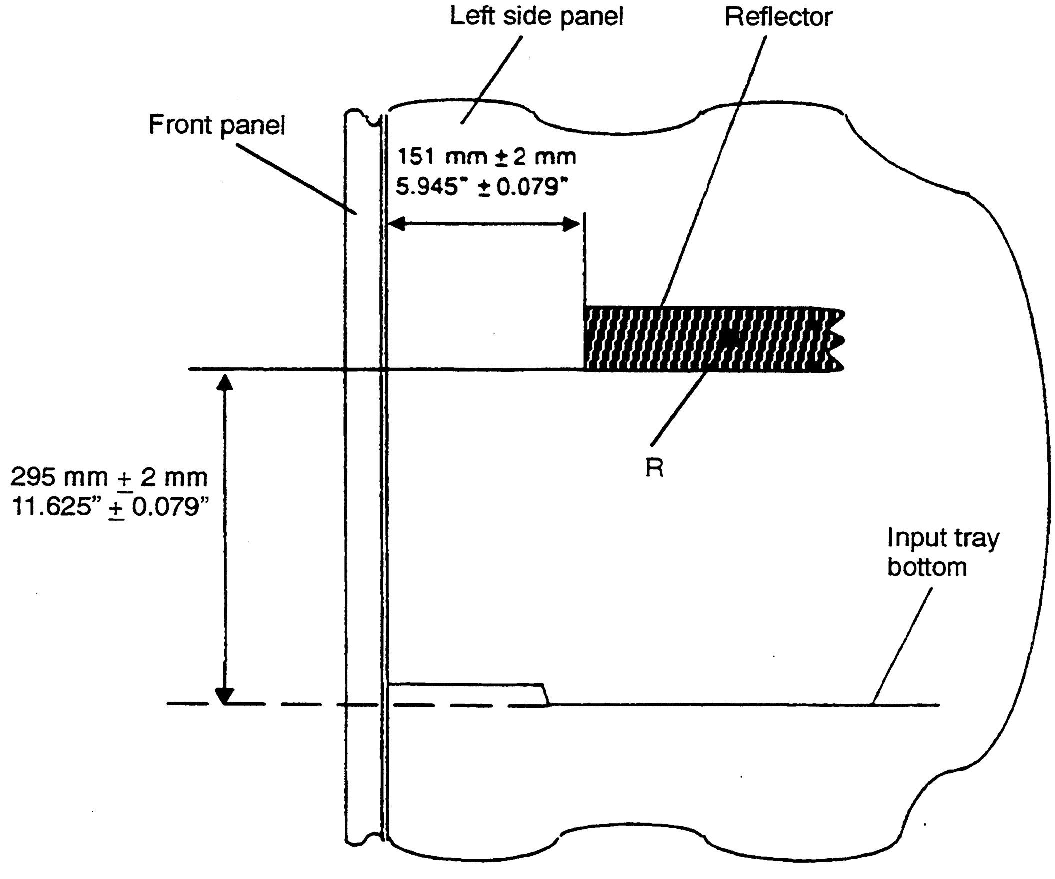


Figure 2-82. Paper Out Sensor (2)

c. Determine point "R" on the reflector using a piece of paper and blocking sections of the reflector strip until the LED on the sensor illuminates (refer to Figure 2-82).

d. It may be necessary to remove the right side panel over the sensor in order to make the following adjustments. Remover the 4-Tx25 screws "A" securing the side panel (refer to Figure 2-37).

Point "R" Horizontal Alignment:

1. The correct horizontal position of point "R" should be 9.375 inches +/-0.5 inches (238mm +/-13mm) in from the left edge of the side panel. If not, adjust the sensor accordingly by sliding it along the mounting slot.

Point "R" Vertical Alignment:

2. The correct vertical position of point "R" should be in the middle of the reflector strip. If not, adjust the sensor by bending bracket "W" up or down (refer to Figure 2-81).

e. Verify the correct position of point "R" by repeating Step C.

f. Tighten all loosened screws and finish assembling the rest of the unit.

51A3. Paper Out Sensor Reflector. If it is necessary to replace the reflective strip, refer to Figure 2-82 for proper placement.

51B. Paper Transport Antistatic Strips

51B1. Paper Transport Antistatic Strips Removal and. Replacement

Estimated time to complete this procedure: 10 minutes.

a. On the paper transport assembly there are 2 strips, one at the input, and one at the output. To remove the strip(s), loosen the knurled screw until the strip can be lifted out of the channel that it rests in.

b. Install the new strip on locator pins in the channel; tighten the knurled screw.

Note Two more antistatic strips are located in the stacker assembly. Refer to Routine 72D1 for procedure.

Paper Transport Assembly

Routine 52

52A. Paper Transport Assembly

52A1. Paper Transport Removal. Estimated time to complete this procedure: 2.5 hours.

Warning **This procedure requires 2 people. The paper transport assembly weighs approximately 55 pounds (25 kg) and is awkward to handle.**

---

a. Power down printer at the operator panel; set the main circuit breaker to OFF.

b. Remove the PC drum (refer to Routine 41A1).

c. Slide out developer station. Cover unit with paper to prevent dropped parts from entering unit. Slide back into printer.

d. Remove the paper conveyor assembly (refer to Routine 55A1).

e. Remove the black plastic cover from the printer frame located in front of the paper transport assembly (newer models only). The cover is attached by 2-Tx20 screws.

f. From the rear of the printer, loosen the 2-Tx20 screws "A" which help secure the panel bracket (refer to Figure 2-83).

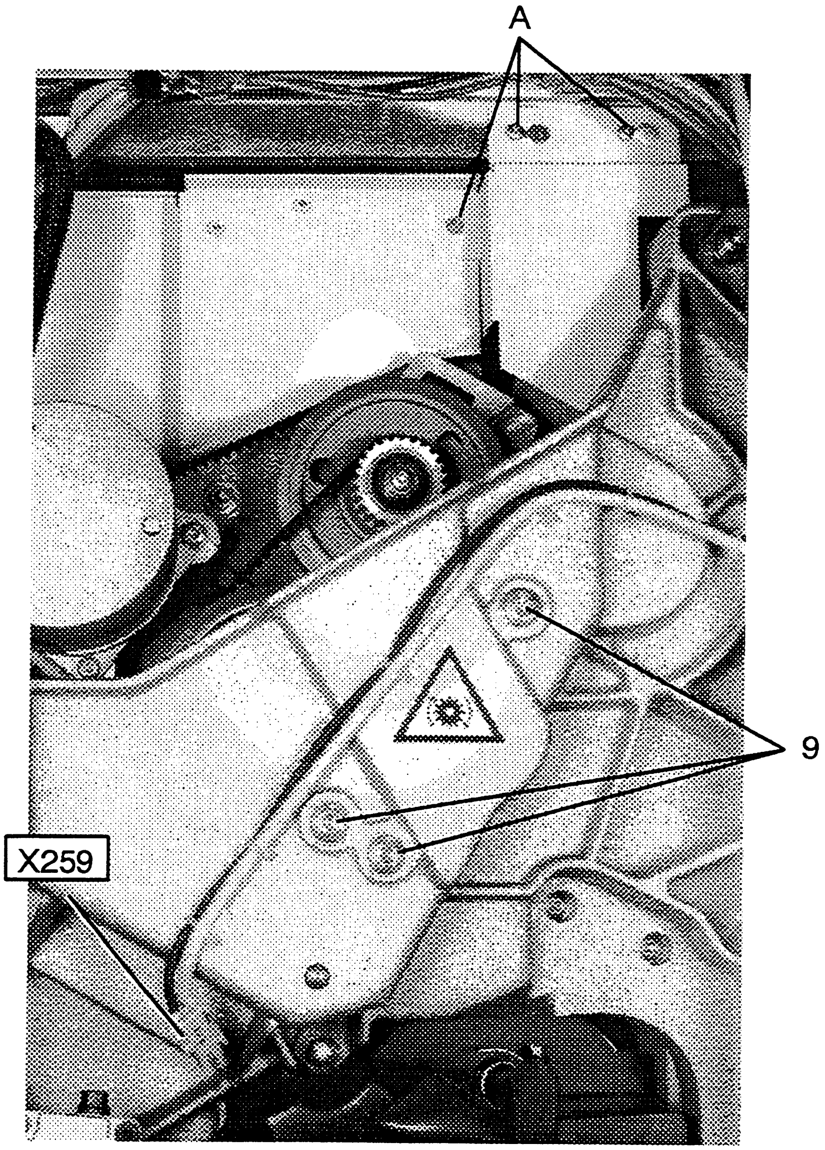


Figure 2-83. Paper Transport Assembly (1)

g. From the front of the printer, remove the last Tx20 screw "A" securing the panel bracket behind loop puller "Z". Remove panel (refer to Figure 2-83 and Figure 2-84).

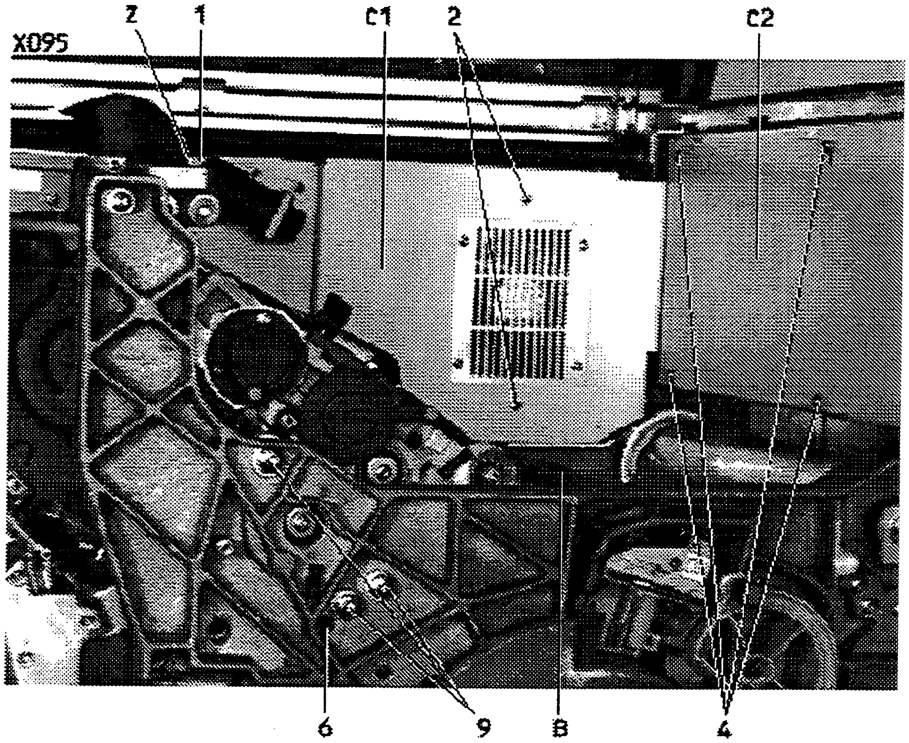


Figure 2-84. Paper Transport Assembly (2)

h. Remove panel "C1" including shock absorber, attached by 2-Tx20 screws "2" (refer to Figure 2-84).

i. Remove the high voltage power supply (refer to Routine 92D1).

j. Remove submodule 1 cover "C2" (refer to Figure 2-84).

k. Disconnect plugs: X14, X18, X40, X47 and X48 from the PDW PCA.

l. Cut all cable ties, back to the transport motor, which secure the wiring harness.

m. Disconnect X259 (refer to Figure 2-83), and free cable (black colored) from all cable ties leading back to the transport motor.

n. Push the other half of connector X259 and attached cable (tan colored) back into the hole located in the casting.

o. From the other side of the casting, free connector X259 and its tan cable from any obstruction. This cable and connector will be lifted out with the transport assembly.

p. Remove the single Tx20 screw "5" that attaches the 3 ground cables (refer to Figure 2-85).

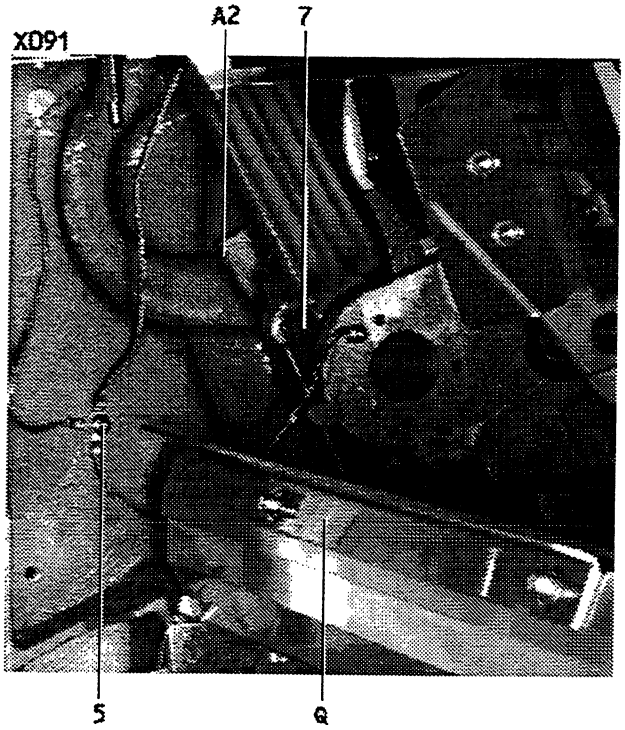


Figure 2-85. Paper Transport Assembly (3)

q. Remove paper guide plate "Q" (refer to Figure 2-85).

r. Raise the transport swing arm; remove the 2 slotted screws "7" (refer to Figure 2-85 and Figure 2-86).

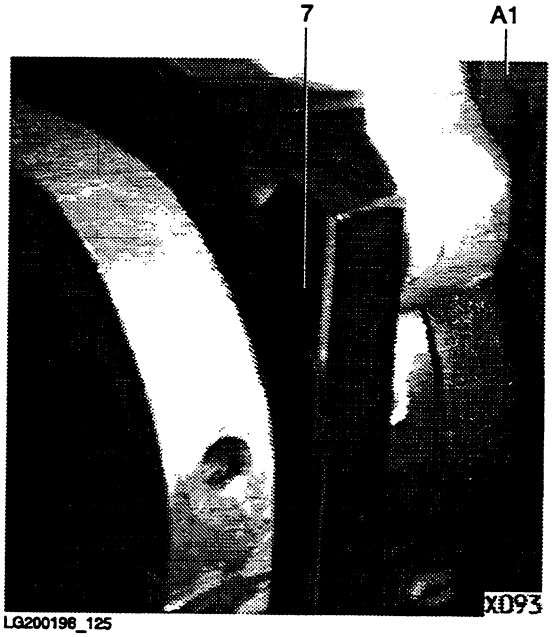

7
A1
XD93
LG200198_125

Figure 2-86. Paper Transport Assembly (4)

s. Remove the gas shock from the transport swing arm (refer to Routine 53F1).

t. Remove the 4-Tx20 screws (2 in front; 2 in rear) "8" that attach the swing arm to the transport assembly (refer to Figure 2-87).

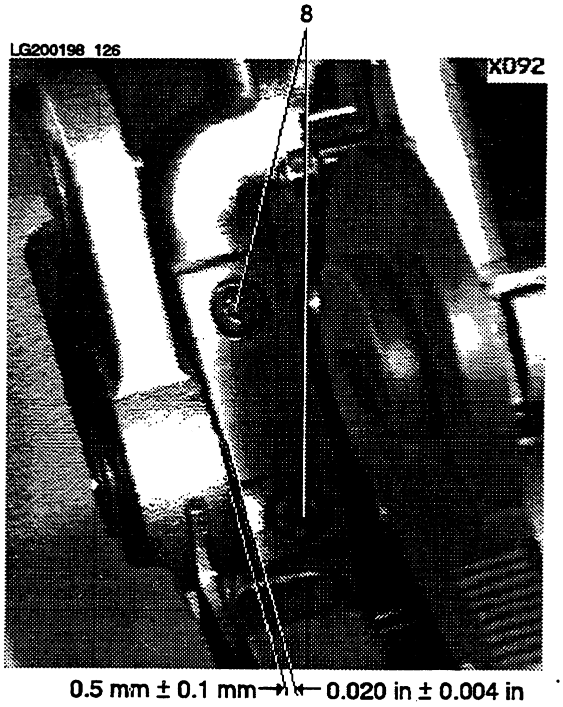


Figure 2-87. Paper Transport Assembly (5)

Caution When removing the screws, be careful not to drop the bottom half of the bracket into the printer.

u. Remove the swing arm assembly. Be careful not to damage the bottom of the plastic tractor flap knob.

v. Remove the C-clip from the back side of slotted screw "6" (refer to Figure 2-84); remove screw "6".

w. Remove screw-stud “10” (refer to Figure 2-88).

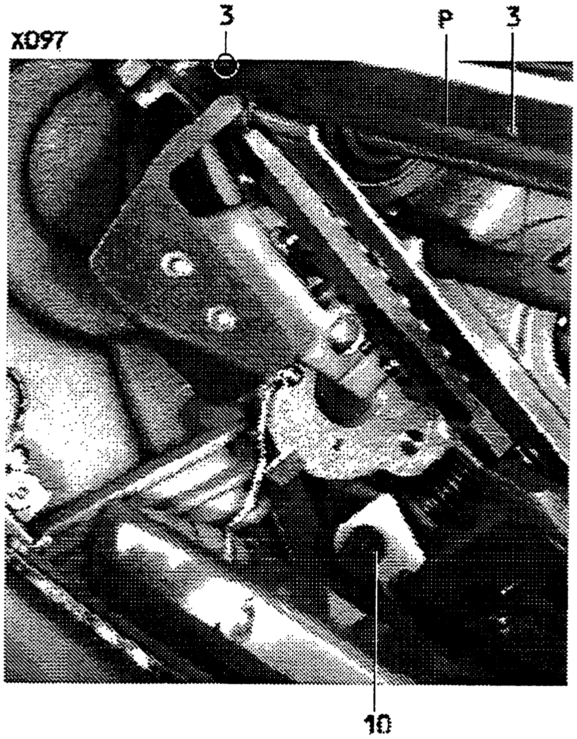


Figure 2-88. Paper Transport Assembly (6)

x. With tape, hold back the black paper reflector plate “B” located next to the transfer assembly (refer to Figure 2-84).

y. Remove the 6-Tx40 screws “9”; 3 are located on the printer front side (refer to Figure 2-84), and 3 are located on the rear side (refer to Figure 2-83).

z. Verify all cables from the transport assembly are free; with the help of a second person, lift the paper transport assembly from the printer. Refer to Routine 52A2 when installing the assembly back into the printer.

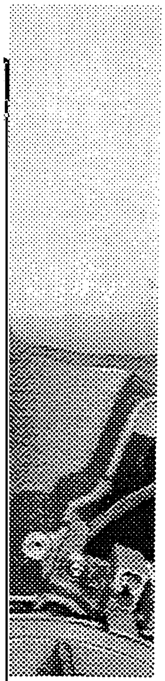
Caution When removing the transport, be careful that no loose cables get snagged on the printer.

52A2. Paper Transport Installation. Estimated time to complete this procedure: 5 hours.

Tools required:

- 0.5mm (0.02 inch) feeler gauge.

Note Before placing the paper transport assembly in the printer, locate the 4 supporting surfaces “S” (2 on the front; 2 on the rear) that the unit will rest on (refer to Figure 2-89).



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. Verify proper

52B. Paper Tray Assembly Adjustment

52B1. Verification of Paper Path Alignment.

Note This routine requires precision adjustments by factory personnel. Please contact your local Response Center product support before proceeding.

Tools required:

- 3 m mylar gauge
- HELPU

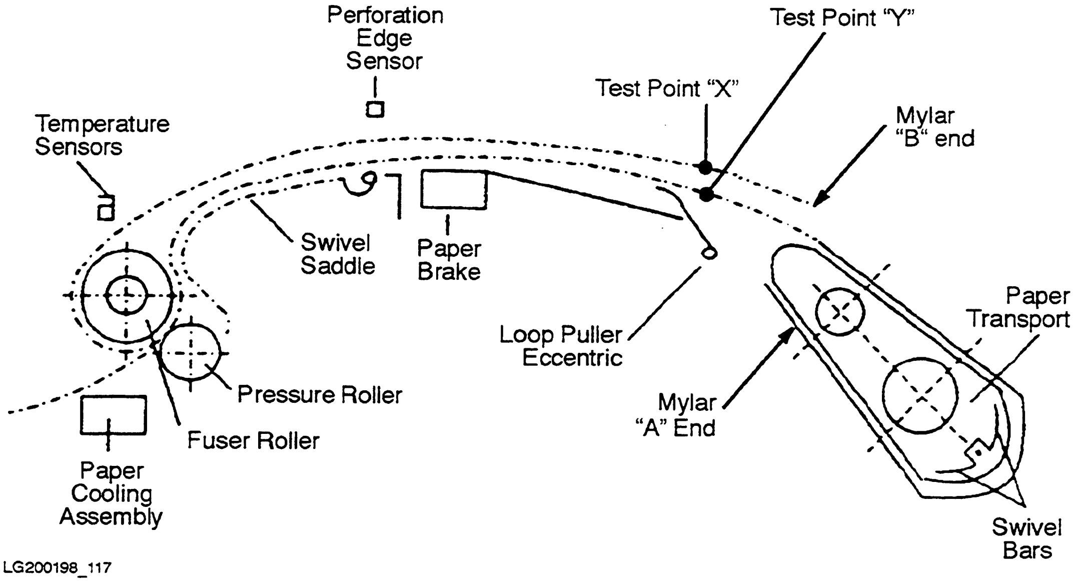
a. Verify alignments in Routines 52C1, 52C2, and 64A1.

b. Move the stacker assembly to the middle position, in order to verify the alignment of the fixed wobbler plate after completing this routine.

c. Open only the side panel doors in front of the fuser assembly, and allow the printer to cool. Do not open any other panel doors, or the K10 safety relay will be disabled, and HELPU will not function.

d. Verify that the printer is level in the transverse direction (refer to the *Installation* section of this manual).

e. Install mylar gauge in upper and lower tractor assemblies, so that the last perforation hole is on the last tractor pin "A" (refer to Figure 2-90).



Perforation Edge Sensor
Test Point "Y"
Test Point "X"
Temperature Sensors
Mylar "B" end
Swivel Saddle
Paper Brake
Paper Transport
Loop Puller Eccentric
Pressure Roller
Mylar "A" End
Fuser Roller
Paper Cooling Assembly
Swivel Bars
LG200198_117

Figure 2-90. Paper Path Static Adjustment

f. Close the lower tractor flaps.

g. Tension the mylar over the transfer bars and close the upper tractor flaps.

h. Using HELPU, engage the swivel saddle.

i. Insert the mylar gauge in the fuser station so that the gauge passes between the fuser roller and paper cooling assembly (refer to Figure 2-90).

j. Grasp the mylar gauge at the output of the fuser assembly. While pulling evenly, tension the mylar so that the loop puller is half tensioned.

k. While the mylar gauge is evenly pulled over the fuser roller, engage the pressure roller using HELPU.

l. Recheck the mylar tension to be sure it is even.

m. Rotate the slewable sensor strip upwards. Place the mylar gauge between the pressure roller and sensor strip, then direct it back out towards the paper transport assembly until it reaches point "B" (refer to Figure 2-90).

n. Check that the edge of the mylar at test point "X" aligns (or overlays) with the edge of the mylar at test point "Y" or is within +/- 0.5 mm (+/- 0.02 inch). If alignment is within this specification, disengage the pressure roller and swivel saddle, and remove the mylar gauge to complete this routine; otherwise, continue with the next step.

o. To adjust for proper alignment, disengage the swivel saddle with HELPU. Again while the mylar gauge is evenly pulled over the fuser roller, verify the alignment of the mylar edges at test points "X" and "Y" [+/- 0.5 mm (+/- 0.02 inch)]. If the edges are now within this specification, the parallelism of the swivel saddle requires adjustment (refer to Routine 64A1).

p. After completing Routine 64A1, again verify the alignment of the mylar edges at test points "X" and "Y" [+/- 0.5 mm (+/- 0.02 inch)]. If alignment is still outside of specification, adjustment of the loop puller is required (refer to Routine 55L2).

q. Repeat this routine until the mylar edges are in alignment.

52C. Parallelism of Tractor Assemblies

Note If paper path adjustments are necessary to complete Routines under 52C, also check for proper paper path adjustment with Routine 52B1, and dynamic edge monitoring with Routine 67A2.

52C1. Tractor Assemblies—Transfer Bar.

Note This routine requires precision adjustments by factory personnel. Please contact your local Response Center product support before proceeding.

---

a. Power down printer at the operator panel; set the main circuit breaker to OFF. Adjust for maximum paperwidth, and open tractor flaps.

b. Insert one gauge foil into the lower tractor assembly on the front side, and one on the rear side. Close the tractor flaps.

c. Place rear gauge foil over upper tractor teeth of movable tractor assembly. The teeth must be centered in the perforation, while rocker "W" is pressed downwards (refer to Figure 2-91 and Figure 2-92).

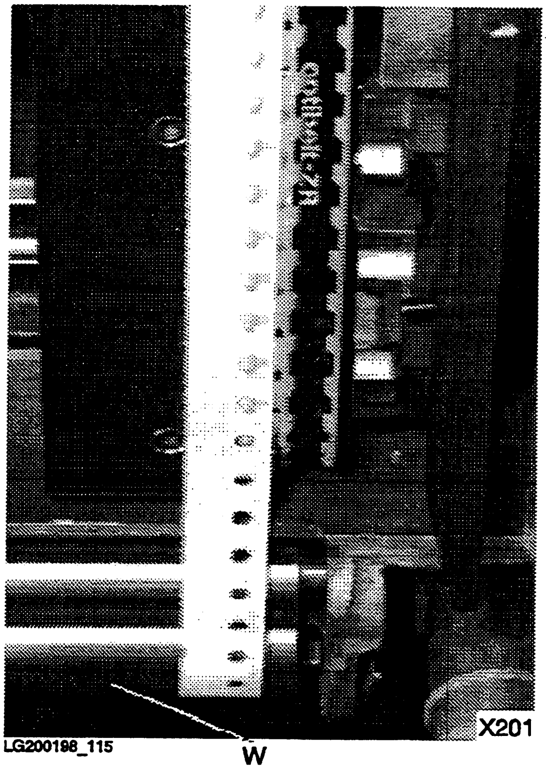


Figure 2-91. Paper Transport Tractor Assemblies (1)

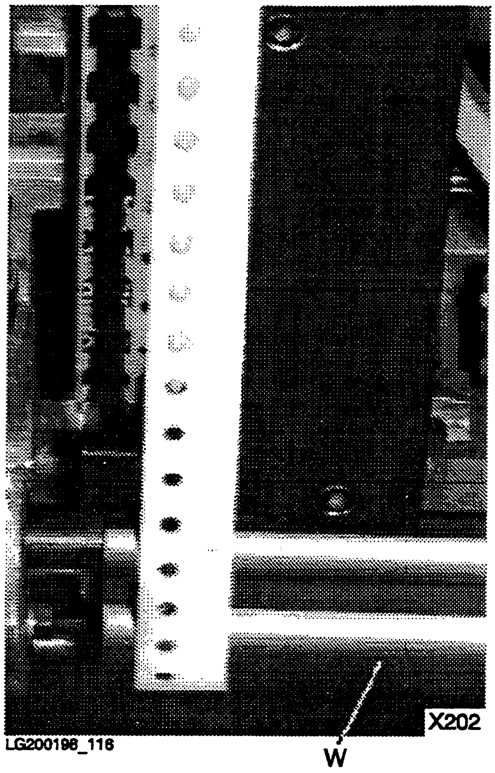


Figure 2-92. Paper Transport Tractor Assemblies (2)

d. Fix the rocker in this position with tape in order to prevent it from being moved.

e. Place the front gauge foil over the upper tractor teeth of the fixed tractor assembly.

f. If the teeth of the fixed tractor assembly are not centered in the perforation of the foil, loosen Tx20 screw "C" and adjust eccentric "E" (refer to Figure 2-93).

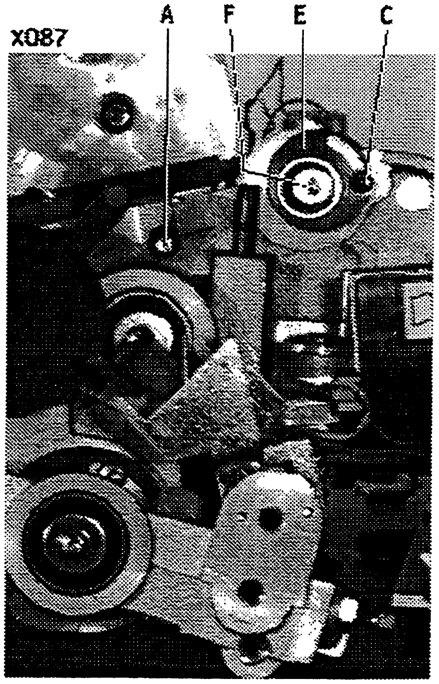


Figure 2-93. Paper Transport Tractor Assemblies (3)

g. Remove the gauge foils, and do Routine 52C2.

52C2. Horizontal Parallelism of Tractor Pins. Tools required:

- Alignment triangles, HP part number 02566-00261

a. Remove paper and adjust the tractor assemblies so the width between the tractor pins is 13 inches (330 mm).

b. Using ADVF or ADVR from the operator panel, rotate the tractor assemblies until eccentric screw "A" is visible (refer to Figure 2-93).

c. Loosen the 2-Tx25 screws "D" located on the inside of the front tractor wheel of the fixed tractor assembly (refer to Figure 2-94).

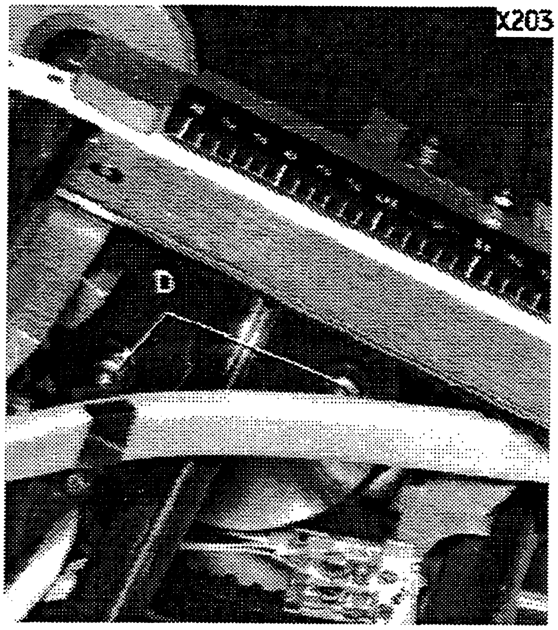


Figure 2-94. Paper Transport Tractor Assemblies (4)

d. Insert the alignment triangles (HP part number 02566-00261) into each of the upper tractors only, and close the tractor flaps (refer to Figure 2-95).

e. Adjust eccentric screw "A" (refer to Figure 2-93) until the alignment lines (refer to Figure 2-95) are overlapping each other.

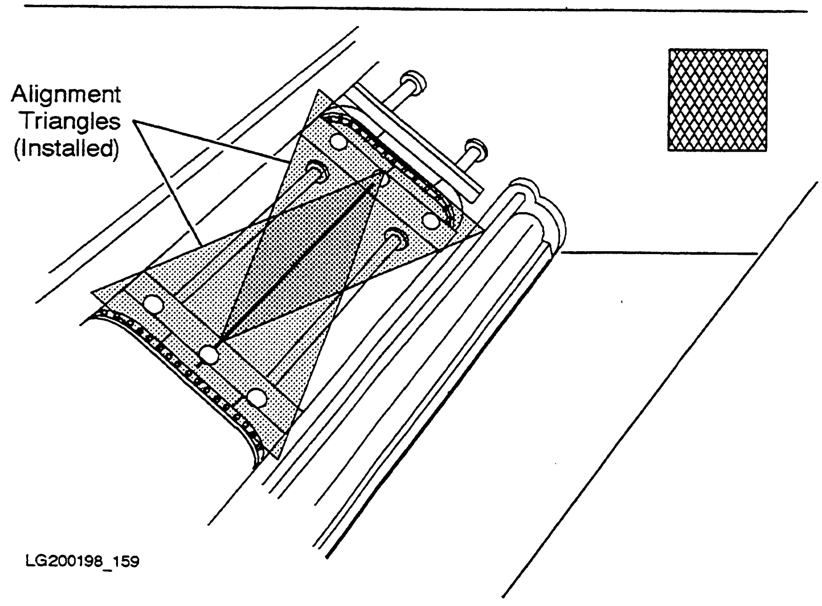

Alignment Triangles (Installed)
LG200198_159

Figure 2-95. Paper Transport Tractor Assemblies (5)

f. Remove the alignment triangles and tighten screws "D" (refer to Figure 2-94).

g. Insert the triangles again to verify that the pin alignment has not changed. Adjust if necessary.

52D. Tractor Flaps

52D1. Tractor Flap Guide Plate Clearance.

a. Clearance between guide plates "G" and tractor flap "L" must be 0.3 mm +/- 0.1 mm (0.012 inch +/- 0.004 inch) (refer to Figure 2-96).

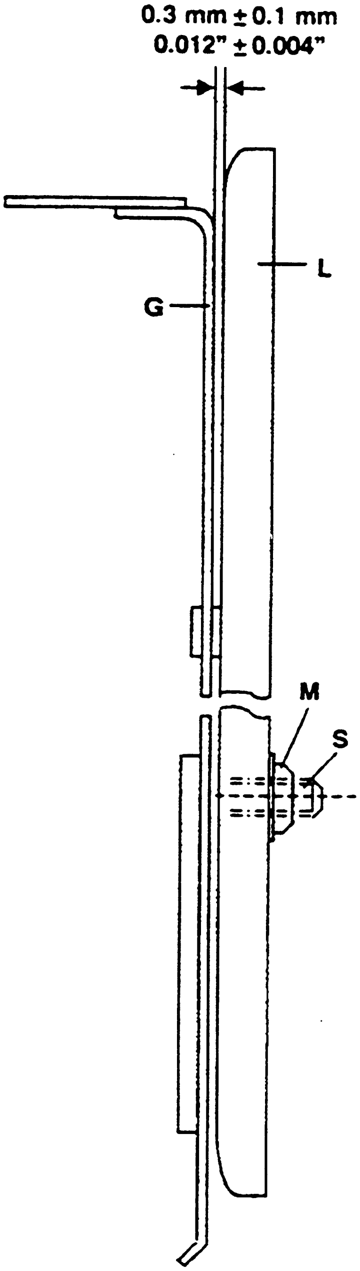


Figure 2-96. Tractor Flaps Adjustment (1)

b. Adjust by loosening lock nuts "M" (8 mm) and turning locking screw "S" (refer to Figure 2-96).

c. Tighten lock nuts "M" (refer to Figure 2-96).

52D2. Vertical Parallelism of Tractor Pins.

a. Clearance between tractor pins "T" on belts and tractor flaps "L" must be 0.1 mm + 0.1 mm (0.004 inch + 0.004 inch) over the whole length (refer to Figure 2-97).

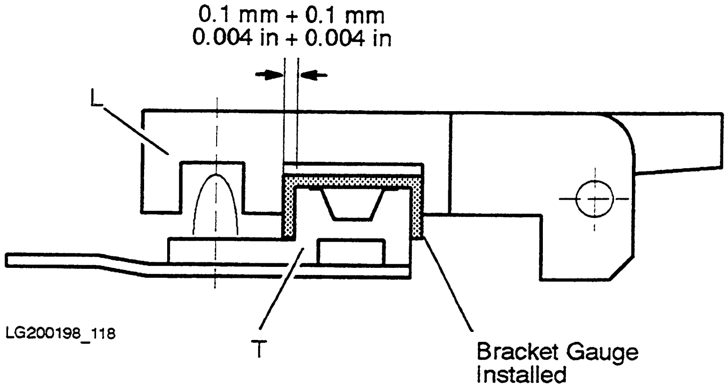

0.1 mm + 0.1 mm
0.004 in + 0.004 in
L
LG200198_118
T
Bracket Gauge Installed

Figure 2-97. Tractor Flaps Adjustment (2)

b. Adjust as follows:

- Loosen the 2 screws "H" (refer to Figure 2-98).

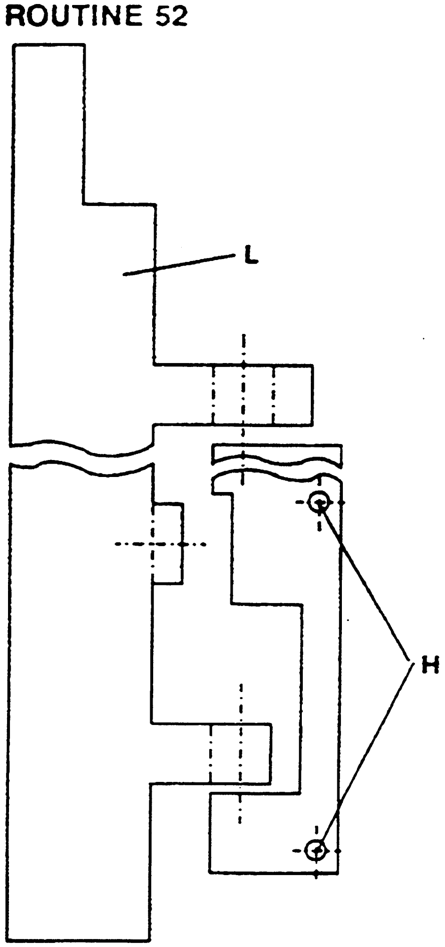


Figure 2-98. Tractor Flaps Adjustment (3)

- Place bracket gauge (HP part number 1058959) on belt and close flap "L" (refer to Figure 2-97).
- Tighten screws "H" (refer to Figure 2-98).

52E. Forms Alignment Scale

52E1. Forms Alignment Scale Adjustment.

a. Verify vertical position of toner mark for correct location (refer to Routine 41D2).

b. Set paper length (Menu 1.0) and page length (Menu 1.3) to 12 inches (304.8 mm). Enable submodule print (Menu 4.6, Test 118=03H) and print at least one page. It is not necessary to have the top of form set at this time.

c. Measure the distance between the lower edge of the toner mark and the 12 inch mark on the scale. Verify a distance of 0.5 inch +/- 0.01 inch (12.7 mm +/- 0.2 mm) (refer to Figure 2-99). If the measurement is within specification, the rest of this procedure does not apply; otherwise, continue with the next step.

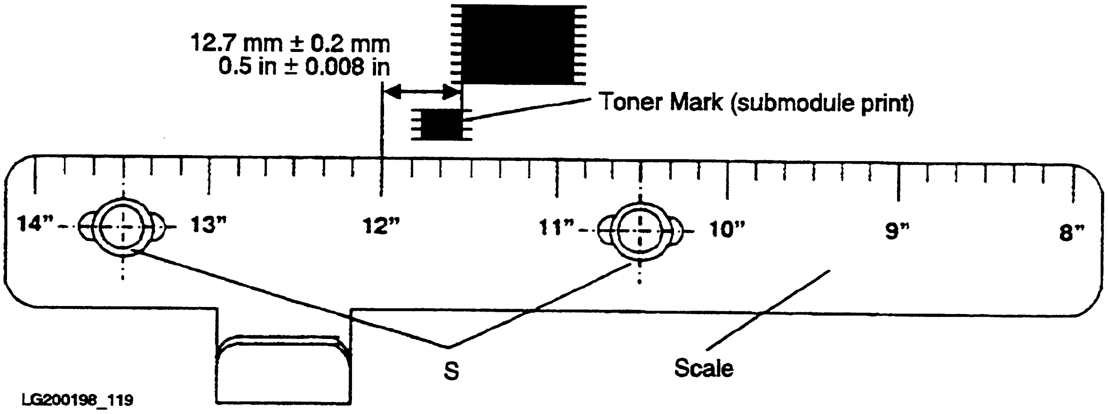


Figure 2-99. Tractor Flaps Adjustment (4)

d. Loosen the 2-2.5 mm screws "S" that secure the scale to the tractor assembly (refer to Figure 2-99).

e. Between the lower edge of the toner mark and the 12 inch mark on the scale, adjust for a distance of 0.5 inch +/- 0.01 inch (12.7 mm +/- 0.2 mm) (refer to Figure 2-99).

f. Tighten the 2 screws "S".

g. Print at least 1 page of submodule print and verify distance.

Paper Transport Parts

Routine 53

53A. Tractor Belts

53A1. Tractor Belt Removal and Replacement. Estimated time to complete this procedure: 1 hour.

a. Power down printer at the operator panel; set the main circuit breaker to OFF.

b. Remove the 8-Tx20 screws that attach the 4 tractor guide plates. Remove connector X17 from the paper motion sensor PCA on the upper front plate. Take care not to damage the paper motion sensor on the upper front stationary tractor assembly.

c. Cut off the old belt(s) with a knife, or a pair of diagonals. Remove the tractor pins from the old belt(s).

d. There is a set of 2 new belts that come with the printer when it is new. They are located in a set of holding brackets near the stationary tractor. When you remove the new belts from the holding brackets, be careful not to damage them. If you damage them, you will have to replace the entire paper transport assembly.

e. Remove the new belts from the holding brackets.

f. Disconnect the connector from switch S10 (refer to Figure 2-100).

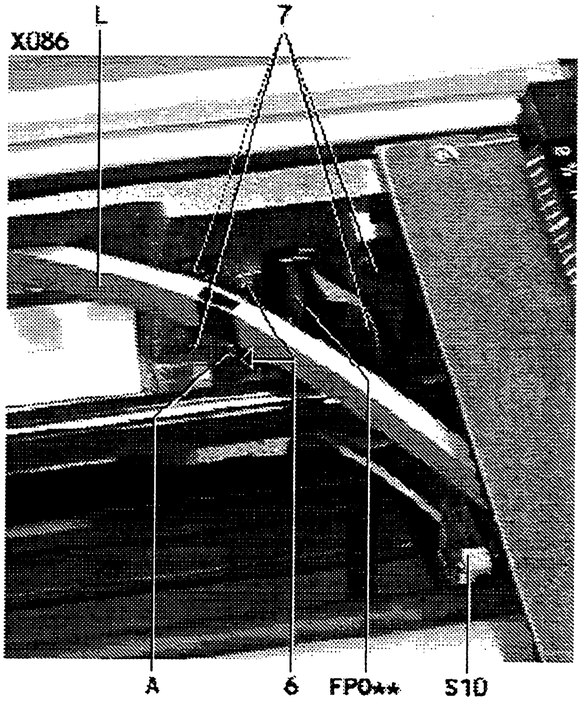


Figure 2-100. Paper Transport Parts (1)

g. Disconnect connector X31A on the FPO** sensor PCA.

h. Move the rear belt over the plastic track guide channel for the transfer corotron by flexing the channel a little. It should not be necessary to remove the holding bracket.

i. Install the new belt(s) on the pulleys.

j. Install the tractor pins on the new belt(s) making sure that the pins are parallel to each other.

k. Reconnect switch S10, and the FPO** PCA X31A.

l. Replace the tractor guide plates, making sure to reconnect the paper motion sensor X17. Also make sure that the cable to the paper motion sensor does not get caught in the stationary tractor, bend the cable so it rests away from any rotating parts.

m. Do Routine 52C2.

53B. Paper Stepper Motor

53B1. Paper Stepper Motor Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Power down printer at the operator panel; set the main circuit breaker to OFF.

b. Open rear doors of printer; remove panel cover above developer station (4 mm screw).

c. Disconnect the connectors X47 and X48 from the PDW** PCA, located behind "C" (refer to Figure 2-101). Remove the cables from the cable harness back to the motor. You will have to remove the HV Power supply to help with the removal of these cables (refer to Routine 92D1).

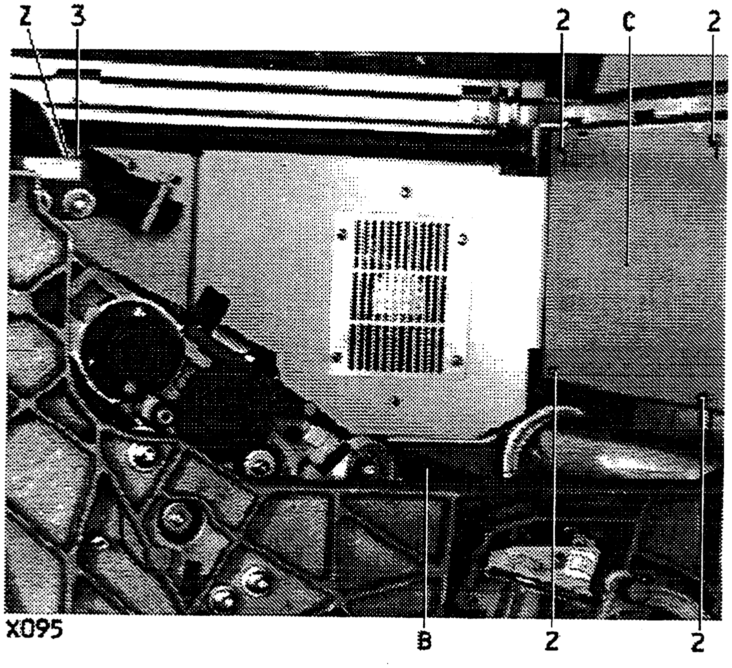


Figure 2-101. Paper Transport Parts (2)

d. Lower the paper transport swing arm to allow easier access to the motor.

e. Remove the 4-Tx25 screws "5" that attach the motor to the transport unit. While holding the motor, gently wiggle and pull it out and away from its mounts (refer to Figure 2-102).

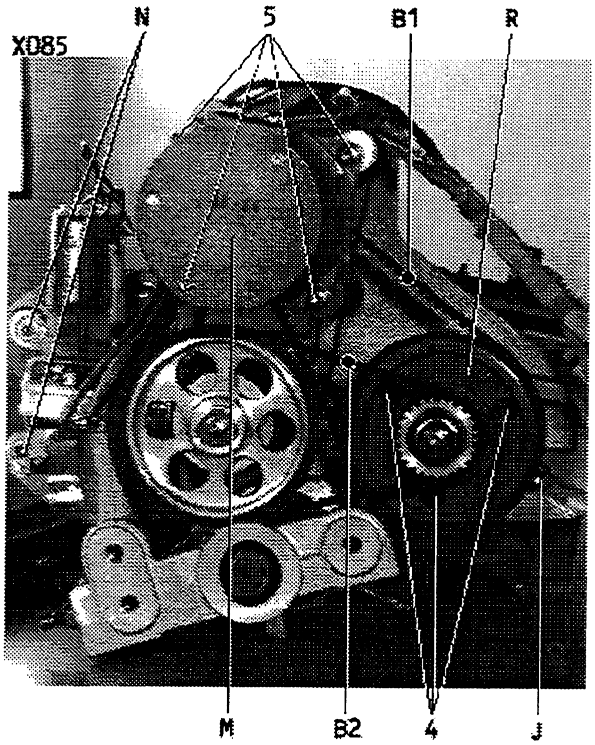


Figure 2-102. Paper Transport Parts (3)

f. Reinstall or replace the stepper motor in the reverse removal order.

g. Adjust belt tension if necessary (refer to Routine 53B2).

53B2. Paper Stepper Motor Belt Tension Adjustment. Estimated time to complete this procedure: 15 minutes.

a. Be sure the paper transport swing arm is in the raised position.

b. Loosen the 3 Tx25 screws "4" (refer to Figure 2-102) that hold the idler pulley in place. These screws are accessed through holes in the pulley.

c. Tension the belts by turning adjustment screw "J" using an angled Tx30 wrench. To access this screw, lower the transport swing arm and reach in from the front of the printer under the paper conveyor. Tension the belts snug enough so that they do not slip on the pulleys.

d. Tighten the 3 screws "4" and check the tensions again. Readjust as necessary.

53C. Paper Motion Sensor

53C1. Paper Motion Sensor Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Power OFF the printer.

b. Unlock the paper transport swing arm assembly and swivel it down.

c. Remove the 2-Tx20 screws "1" that attach the upper guide plate "F" to the stationary tractor assembly (refer to Figure 2-103). When removing the guide plate, be sure not to damage the balancing resistor that is on the paper motion sensor PCA.

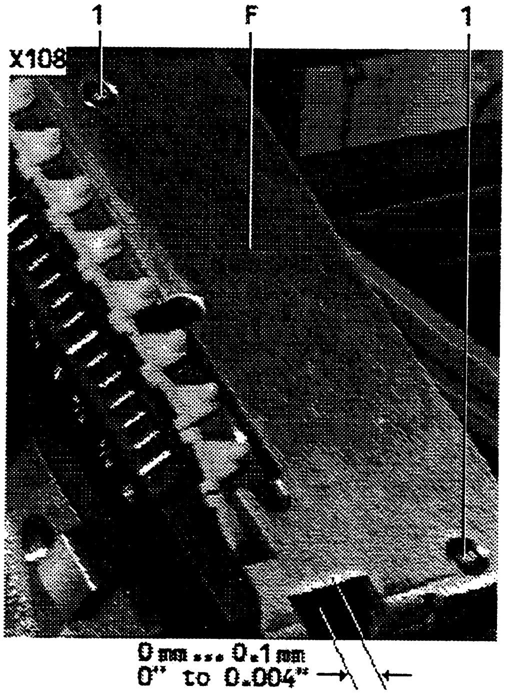


Figure 2-103. Paper Path Sensor (1)

d. Disconnect connector X17, and remove the 2-Tx10 screws "2" that attach the MCL PCA to the guide plate (refer to Figure 2-104).

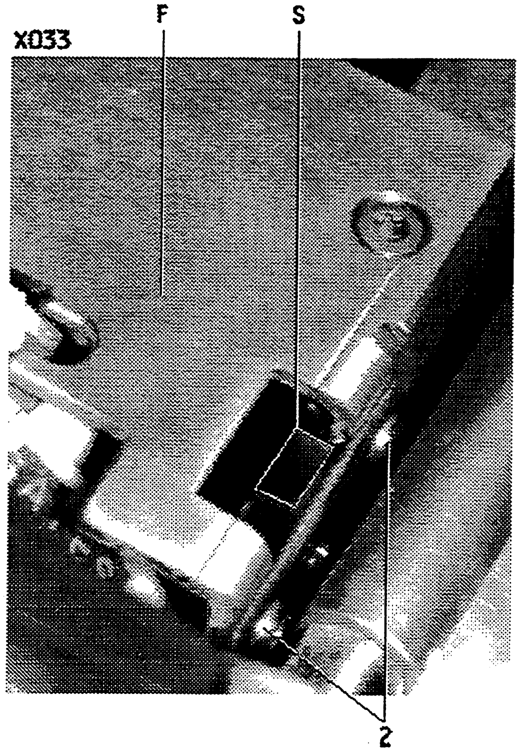


Figure 2-104. Paper Path Sensor (2)

e. Install the replacement MCL PCA in reverse removal order, and adjust the tolerance for a clearance of 0 mm to 0.1 mm (0 inch to 0.004 inch) between the paper path sensor PCA "S" and guide plate "F" (refer to Figure 2-104 and Figure 2-105).

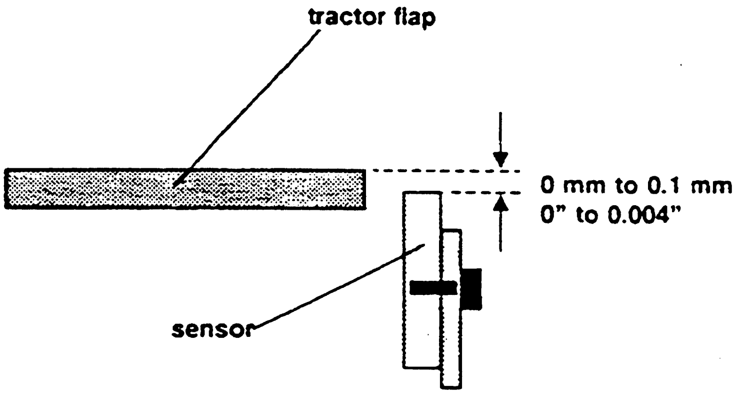

tractor flap
0 mm to 0.1 mm
0" to 0.004"
sensor

Figure 2-105. Paper Path Sensor (3)

f. Secure connector X17 with tie-wraps.

53E. Status Beacon

53E1. Status Beacon Installation. Estimated time to complete this procedure: 20 minutes.

a. Power down printer at operator panel; set the main circuit breaker OFF.

b. Open the top cover of the printer.

c. Loosen the screws that secure cover "A" to the right side of the paper transport area. Remove cover (refer to Figure 2-106).

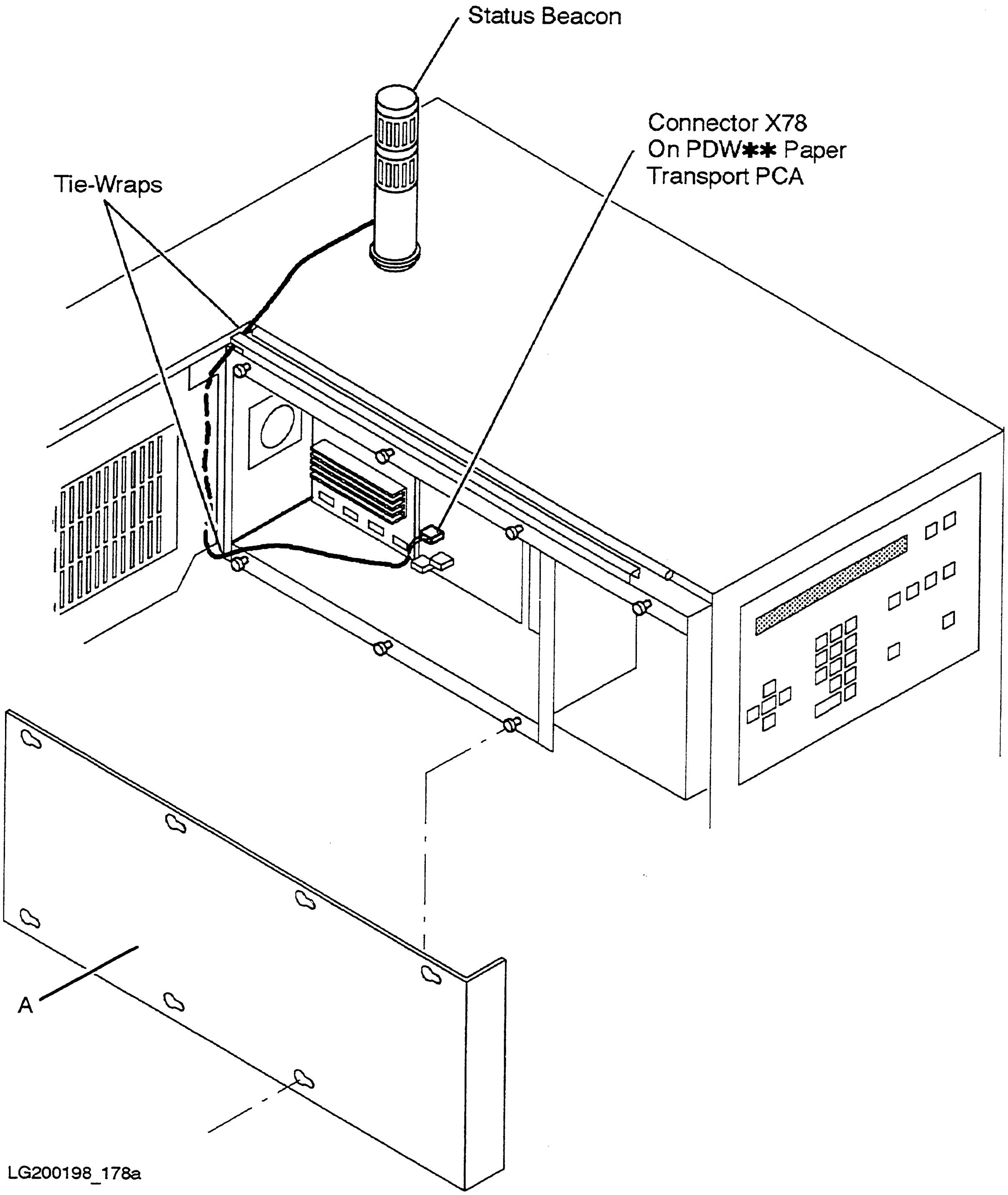

Status Beacon
Connector X78
On PDW✱✱ Paper
Transport PCA
Tie-Wraps
A
LG200198_178a

Figure 2-106. Status Lamp

d. Place the status beacon on top of the printer, over the controller area.

e. Loosely route the cable to the PDW** PCA, being careful to avoid any moving parts of the printer that could snag or pinch the cable (refer to Figure 2-106).

f. Secure the cable, using cable ties, where indicated in Figure 2-106.

g. Secure the plug into connector X78 on the PDW** PCA.

h. Replace cover "A" and secure.

i. Power ON the printer. Test beacon; amber lamp on "stop" mode, green lamp on "ready" mode.

53E2. Status Beacon Bulb Replacement. Estimated time to complete this procedure: 20 minutes.

a. Power down printer at operator panel; set the main circuit breaker OFF.

b. Remove the single slot screw from the top of the beacon assembly.

c. Slide the top and colored lenses up off the assembly.

d. Replace the bulbs as required; reassemble in reverse order.

53F. Paper Transport Swing Arm Gas Shock

53F1. Paper Transport Swing Arm Gas Shock Removal and. Replacement

Estimated time to complete this procedure: 20 minutes.

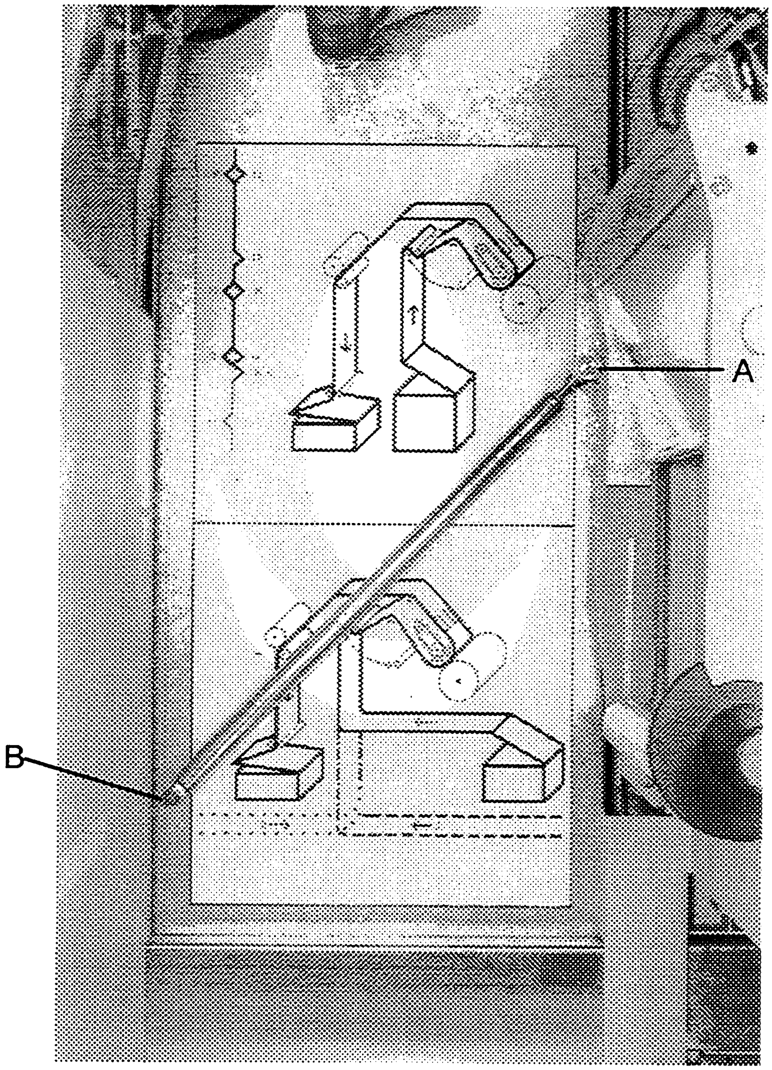
Tools required:

- 13mm wrench or socket

Caution The gas shock is under pressure to extend to its fullest length of approximately 31 inches (79cm). Please be careful when removing the shock from its mounts.

---

a. Lower the transport swing arm and remove the upper C-clip attached to the backside of bolt "A" (refer to Figure 2-107). Do not try to remove the shock from the bolt at this time.



fm1008

Figure 2-107. Transport Swing Arm Gas Shock

b. Raise and latch the swing arm; remove the lower C-clip “B” (refer to Figure 2-107).

c. Verify the swing arm is latched, pull the shock off the lower mounting stud.

d. Cautiously unlatch and lower the swing arm enough to access bolt “A” (refer to Figure 2-107).

e. Using a 13mm socket (or wrench), remove bolt “A”. Remove the shock.

f. Replace the shock in reverse removal order. Verify that the wider cylinder portion is on top.

Note

After securing the shock to the upper stud, it may be necessary to compress the unit in order to attach it to the lower stud. It may be helpful to lower the swing arm and let the shock compress against the floor of the paper input area. Raise the swing arm up while holding the shock, place it on the lower stud.

Transfer Station Parts

Routine 54

54A. Rocker Shaft

54A1. Rocker Shaft Removal and Replacement. Estimated time to complete this procedure: 15 minutes.

a. Open tractors as wide as possible.

b. Retract transfer corotron cartridge (Menu 3.2). Verify tractor flaps are closed.

c. Power down printer at operator panel; set the main circuit breaker to OFF.

d. Open rear doors of printer; remove panel cover above developer station (4-mm Allen).

e. Lower swing arm to allow better access. Swivel up and secure the paper transport unit.

Caution Take care not to damage the ground cable on the drive side of the rocker shaft when it is rotated up. Loosen the clamp and turn for more cable slack.

---

f. Push black plate "B" away from transport, to allow better access, and secure with tape (refer to Figure 2-101).

g. From the front of the printer, remove screw "F" (Tx10) from the end of the shaft (refer to Figure 2-108). Also, remove screw (Tx10) securing plate "H" to the shaft.

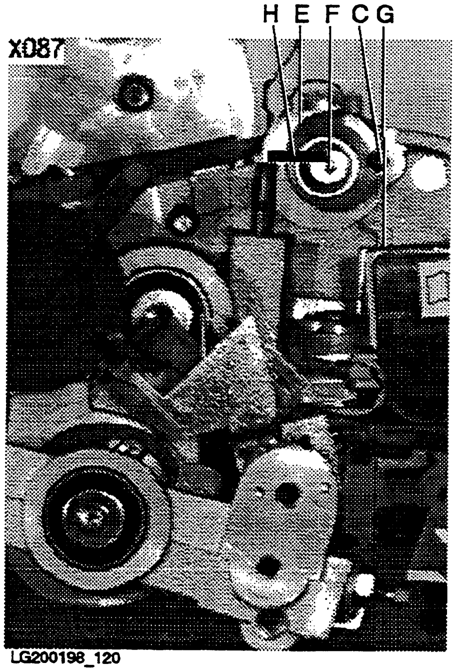


Figure 2-108. Transfer Station Parts (1)

h. Pull the brass bushing from the shaft.

i. From the rear of the printer, remove screw “M” (Tx20) securing the ground wire to the upper rocker plate shaft (refer to Figure 2-109).

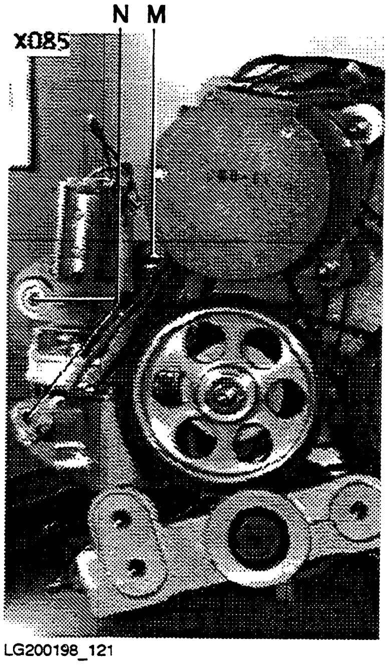


Figure 2-109. Transfer Station Parts (2)

j. Using a pencil or marker, trace a line around the head of screw “C” on the plate of eccentric “E” (refer to Figure 2-108). Later, when reinstalling this part, the tracing will identify where to adjust it to.

k. Remove screw “C” (Tx20). Remove eccentric “E” (with bearing) by pulling it out away from the assembly. If bearing sticks on the shaft, it may be necessary to remove any burrs or buildup to allow easier removal of the eccentric assembly.

l. While holding the upper rocker plate, slide it towards the front of the printer, to allow the rear shaft to free itself from the rear bearing. Now lift the plate out and away from the transport unit.

m. Reinstall in reverse order.

54A2. Transfer Bars Removal and Replacement. Estimated time to complete this procedure: 1 hour.

Tools required:

- 4-mm socket and wrench
- Spring hook

a. Do Routine 54A1.

b. Remove spring "S" from the center of the upper transfer bar (refer to Figure 2-110). It is not necessary to remove the 2 screws "X"; these small parts could be dropped into the EP area and cause problems.

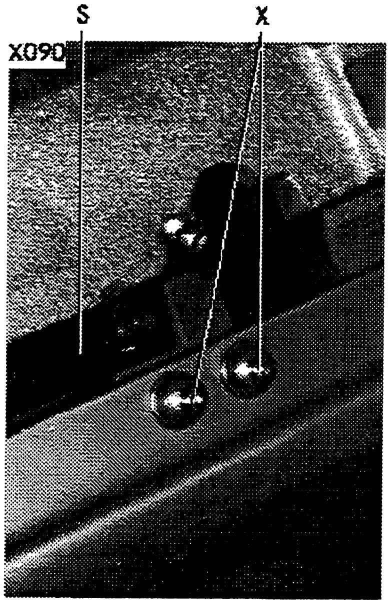


Figure 2-110. Transfer Station Parts (3)

c. From the rear of the printer, remove the 2-7 mm nuts and washers "N" (refer to Figure 2-109). Be careful not to drop any parts down into the EP area.

d. From the front of the printer, loosen screw “1” (Tx10), and slide bracket “B” from slot and out of the way (refer to Figure 2-111).

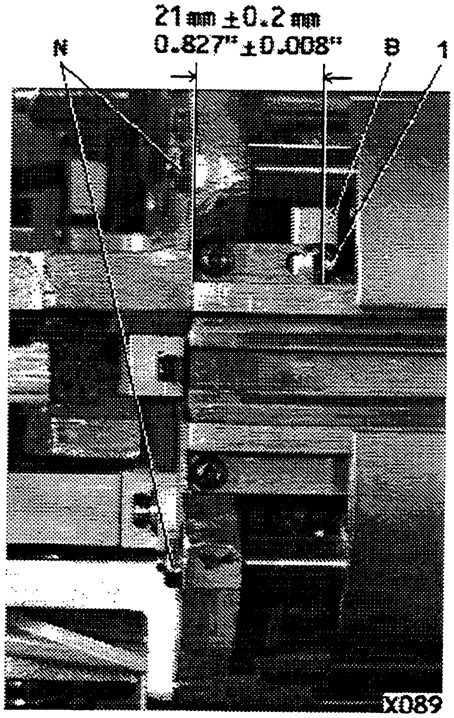


Figure 2-111. Transfer Station Parts (4)

e. Remove nut “N” (7-mm socket) and washer on upper transfer bar (refer to Figure 2-111).

Note When executing the next few steps it may be necessary to turn the cam on the motor shaft to allow for more clearance.

---

f. While holding the upper transfer bar, slide it towards the front of the printer, so that the rear shaft of the bar is free from the bearing and housing. When sliding the bar, the front bearing may be pushed out of its housing. Remove the front bearing.

g. Lift the upper transfer bar away from the transfer unit.

h. Remove nut “N” (7-mm wrench) and washer on the lower transfer bar (refer to Figure 2-111).

i. Repeat Step F. Be careful not to drop spring “S” that was loosened in a previous step.

j. Reinstall in reverse order.

k. Adjust for a clearance of 0.827 inch +/- 0.008 inch (21 mm +/- 0.2 mm) between the casting and the center of screw “1” by moving bracket “B” (refer to Figure 2-111).

54B. Transfer Bars Swivel Motor

54B. Transfer Bars Swivel Motor Removal and Replacement. Estimated time to complete this procedure: 2 hours.

a. Do Routines 54A1 and 54A2

b. Open rear doors of printer; remove panel cover above developer station (4-mm Allen).

c. Lift clip "G" (refer to Figure 2-108) and remove the corotron cartridge.

d. Loosen the Tx10 screw "1" (refer to Figure 2-111). Slide out bracket "B" and disconnect plug X42B from the PCA. Remove the transcorin sensor.

e. Remove the 5-Tx10 screws "3" (refer to Figure 2-112) securing channel "P". The punched plastic strip located inside "P" will slide out the back of the bar to allow easier removal once the 5 screws have been removed.

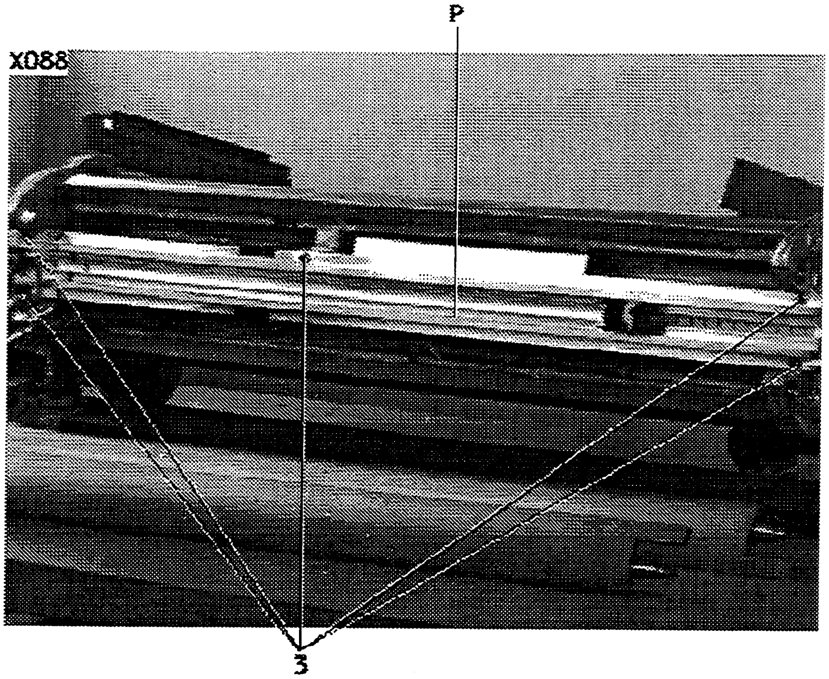


Figure 2-112. Transfer Bars Swivel Motor

f. Push apart the attaching clips and slide out the FPO** PCA.

g. At the motor, disconnect the 4-pin plug X18A.

h. Remove the 2-Tx20 screws "6", and loosen the Tx20 screw "A" to remove the mounting bracket attaching "L".

i. Remove the 4-Tx20 screws "7" to remove the motor cable.

j. Install the replacement swivel-on motor in reverse removal order.

54C. Transfer Corotron Cartridge

54C1. Transfer Corotron Cartridge Removal and Replacement. Estimated time to complete this procedure: 15 minutes.

a. Retract the corotron wires using operator panel (Menu 3.2).

b. Unlock the paper transport swing arm and swivel it down.

c. Secure the paper transport in the up position.

d. Lift the spring bar "G" (refer to Figure 2-113) and hold while pulling the cartridge out to the right.

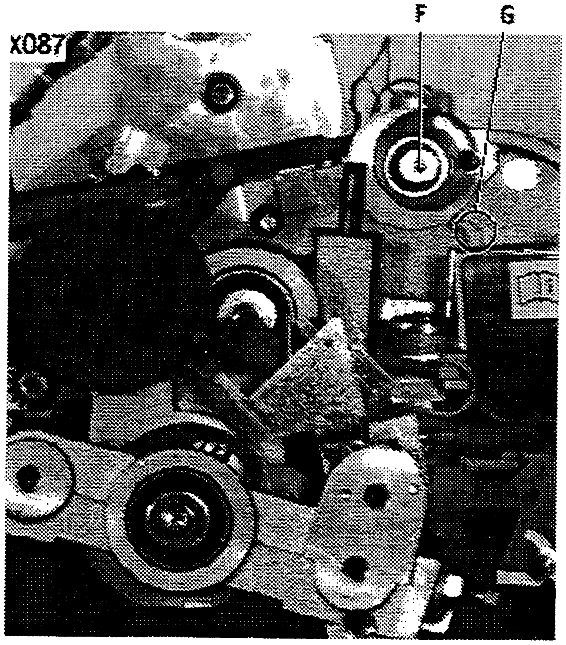


Figure 2-113. Transfer Corotron Cartridge Removal and Replacement

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Note Replying *YES* to the question *CHANGED?___*, resets the printer internal print counter for all the cartridges. If all of the cartridges were not replaced, it is best to reply *NO* to the question. If all the cartridges were just replaced, for example during a PM, then reply *YES*.

---

e. Install the replacement corotron in reverse removal order.

f. Clean the corotron wires 3 times per Menu 5.5.

54D. Transfer Corotron Motor/Pulley

54D1. Transfer Corotron Motor/Pulley Removal and Replacement. Estimated time to complete this procedure: 1 hour.

a. Retract corotron wires using operator panel (Menu 3.2).

b. Power down printer at operator panel; set the main circuit breaker to OFF.

c. Open rear doors of printer; remove panel cover above the developer station (4 mm Allen).

d. Remove the HV power supply (refer to Routine 92D1).

e. Unlock the paper transport swing arm and swivel it down.

f. Secure the paper transport in the up position, to make removal and replacement of the corotron motor easier.

g. Disconnect plug X11C from the motor "U" (refer to Figure 2-114).

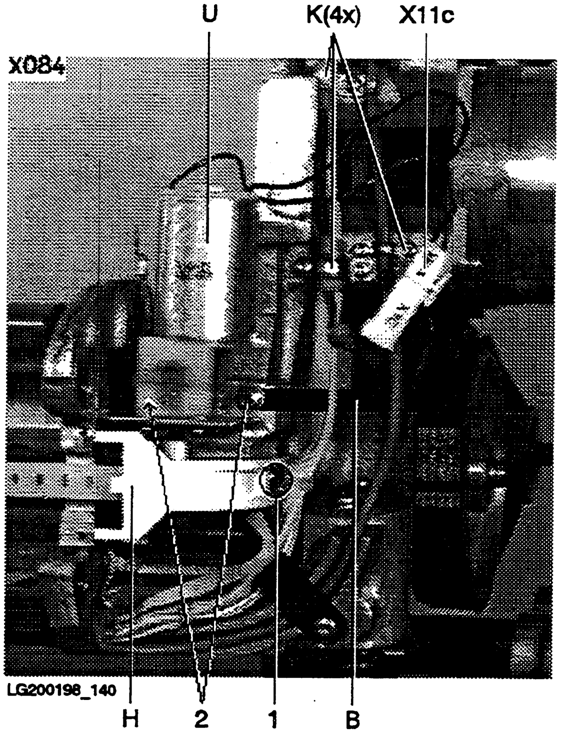

Figure 2-114. Transfer Corotron Motor Removal and Replacement (1)

h. Remove the Tx20 screw that secures cable mounting bracket "B" (refer to Figure 2-114).

i. Remove the 2 cable clamps "K" (refer to Figure 2-114).

j. Remove the 2-Tx20 screws "1" that attach the track guide cover "H", and remove the cover (refer to Figure 2-114).

k. Mark the alignment of bracket “W” on the casting with a marking tool or pencil (refer to Figure 2-115).

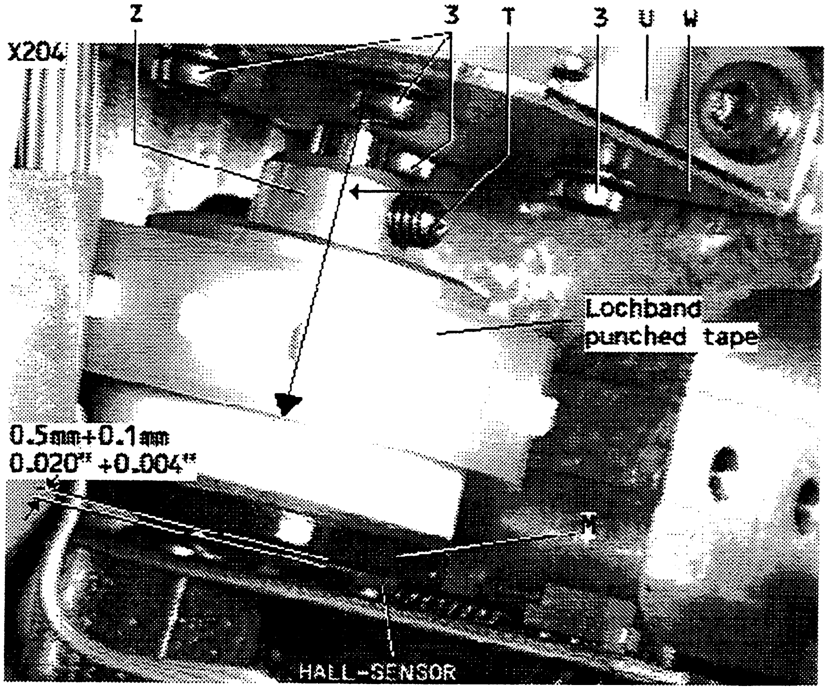

Figure 2-115. Transfer Corotron Motor Removal and Replacement (2)

l. Remove the 2-Tx20 screws “2” that attach motor “U” and bracket “W” to the casting (refer to Figure 2-114 and Figure 2-115). Remove the motor and bracket.

m. Remove the 4 screws “3” that attach bracket “W” to motor “U” (refer to Figure 2-115).

n. Install the replacement motor in reverse removal order. Take care to match bracket “W” with the alignment marks on the casting.

o. Adjust for a clearance of 0.5 mm +/- 0.1 mm (0.020 inch +/- 0.004 inch) between the magnet ring “M” and the hall sensor on the PAW** PCA, by moving coupler “Z” up or down on the motor shaft as necessary (refer to Figure 2-115).

p. Check paper width recognition (refer to Routine 54G).

54F. Paperwidth Sensor (PAW** PCA)

54F1. Paperwidth Sensor Removal and Replacement. Estimated time to complete this procedure: 1 hour.

a. Retract the corotron wires using operator panel (Menu 3.2).

b. Power down printer at operator panel; set the main circuit breaker to OFF.

c. Open rear doors of printer; remove panel cover above the developer station (4 mm Allen).

d. Remove the HV power supply (refer to Routine 92D1).

e. Unlock the paper transport swing arm and swivel it down.

f. Secure the paper transport in the up position.

g. Remove the transfer corotron motor and pulley (refer to Routine 54D1).

Note Remove the transfer corotron motor, bracket, and pulley intact as an assembly.

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h. Disconnect plug X43A (refer to Figure 2-116) from the assembly removed above.

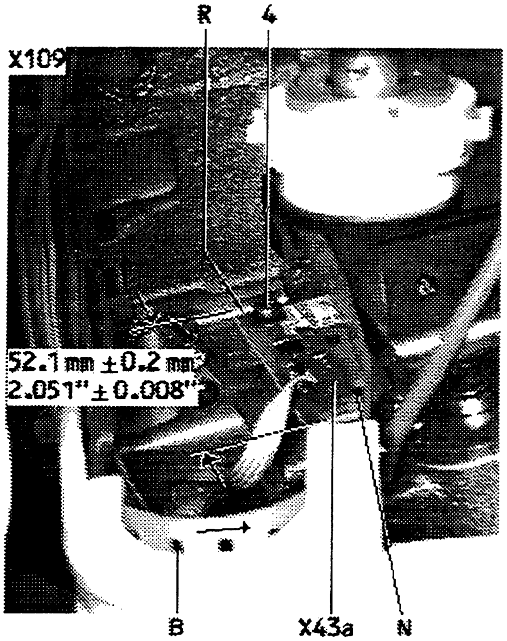

Figure 2-116. Paperwidth Sensor Removal and Replacement

i. Remove the Tx10 screw "4" that attaches the PAW** PCA (refer to Figure 2-116), and remove the PCA.

j. Install the replacement PCA, and adjust for a clearance of 52.1 mm +/- 0.2 mm (2.051 inch +/- 0.008 inch) between casting "R" and the opposite edge of the PCA. Tighten screw "4" to secure the PCA in position (refer to Figure 2-116).

k. Connect plug X43a (refer to Figure 2-116).

l. Complete this procedure in reverse order.

54G. Paperwidth Recognition

54G1. Paperwidth Recognition Check and Adjustment.

a. Remove paper and adjust movable tractor assembly to its rear stop.

b. Clean the corotron wires 3 times using the operator panel (Menu 5.5).

c. Swivel up the paper transport assembly and check to see if the corotron wiper is in position on the movable tractor assembly. If the wiper returned to the corotron cartridge, adjust according to the following steps:

- Remove the 2-Tx20 screws "1" that attach the punched tape cover "H", and remove the cover (refer to Figure 2-114).
- Rotate coupler "Z" (refer to Figure 2-115) to advance tape "B" (refer to Figure 2-116) by 2 holes in the direction of the arrow.

d. Clean the corotron wires 3 times using the operator panel (Menu 5.5).

e. Check the position of the wiper. If the wiper returned to the corotron cartridge a second time, advance the punched tape by 2 additional marks in same direction.

f. Reinstall the punched tape cover "H".

54H. TRANSCOROUT Sensor (HPO** PCA)

54H1. TRANSCOROUT Sensor Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Power down printer at the operator panel; set the main circuit breaker to OFF. Swivel on the paper transport assembly.

b. Adjust the movable tractor assembly to the middle of its travel.

c. Hold open the dust protective strip with a piece of tape.

d. Remove the 2-Tx20 screws "1" that attach bracket "W" and the PCA to the movable tractor assembly. Remove the bracket and the PCA through the center slot (refer to Figure 2-117).

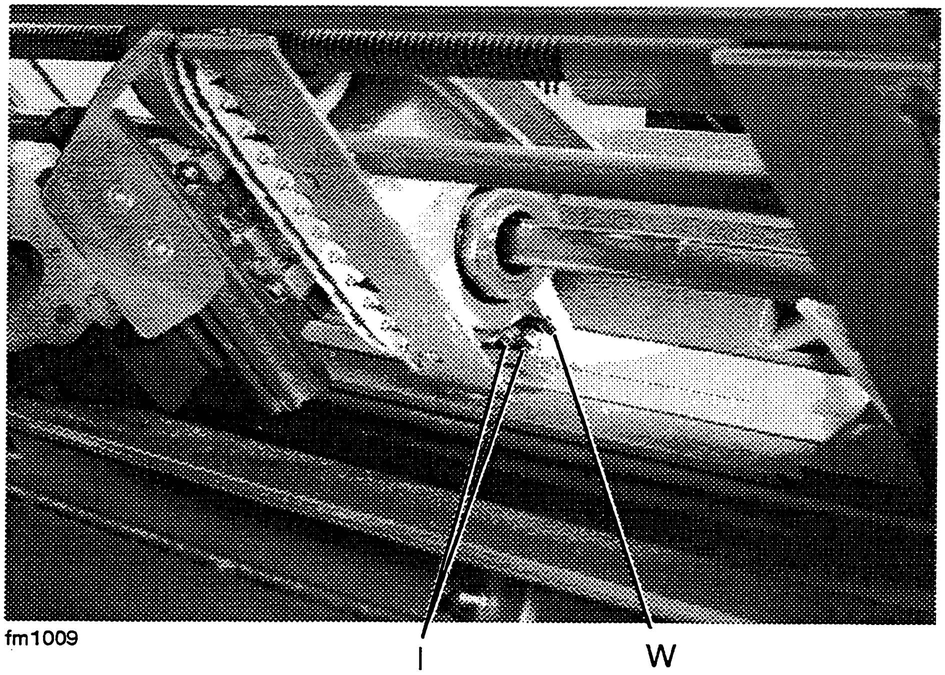

Figure 2-117. TRANSCOROUT Sensor Removal, Replacement, and Adjustment (1)

e. Remove the Tx10 screw that attaches plug X42a to the PCA, and disconnect the plug.

f. Install the replacement HPO** PCA in reverse removal order.

g. Adjust TRANSCOROUT sensor (refer to Routine 54H2).

54H2. TRANSCOROUT Sensor Adjustment.

a. Remove the Tx10 screw that attaches spring plate "F" to the end of the rocker shaft, and remove the spring plate (refer to Figure 2-113).

b. Swivel the rocker to the up position and secure it there with tape.

Caution When the rocker is swiveled to the up position take care not to damage the ground cable on the rear side. Loosen the cable clamp that secures the ground cable so there is some slack in it.

c. Loosen the 2-Tx20 screws “1” (refer to Figure 2-117).

d. Adjust for a clearance “A1” of 0.3 mm +/- 0.5 mm (0.012 inch +/- 0.020 inch) between hall sensor and extrusion “P” by moving bracket “W”. Be sure to adjust bracket “W” so that it remains 90 degrees to extrusion “P” (refer to Figure 2-117 and Figure 2-118).

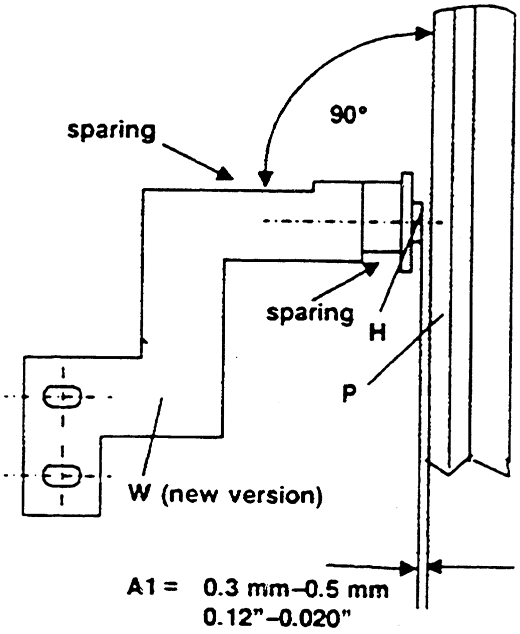

Figure 2-118. TRANSCOROUT Sensor Removal, Replacement, and Adjustment (2)

e. Tighten the 2 screws“1” (refer to Figure 2-117).

f. Check clearance “A1” with the movable tractor at the maximum, center, and minimum positions of its travel to be sure that clearance remains the same. Readjust if necessary.

g. Swivel down the rocker, and reinstall spring plate “F” to the rocker shaft (refer to Figure 2-113).

54J. TRANSCORIN Sensor (HPO** PCA)

54J1. TRANSCORIN Sensor Removal, Replacement, and Adjustment. Estimated time to complete this procedure: 15 minutes.

a. Power down printer at the operator panel.

b. Swivel up and secure the paper transport assembly, and use 2 reams of paper wedged between the upper tractors and the bottom paper conveyor to hold it in the raised position.

c. Remove Tx10 screw "1" (refer to Figure 2-119).

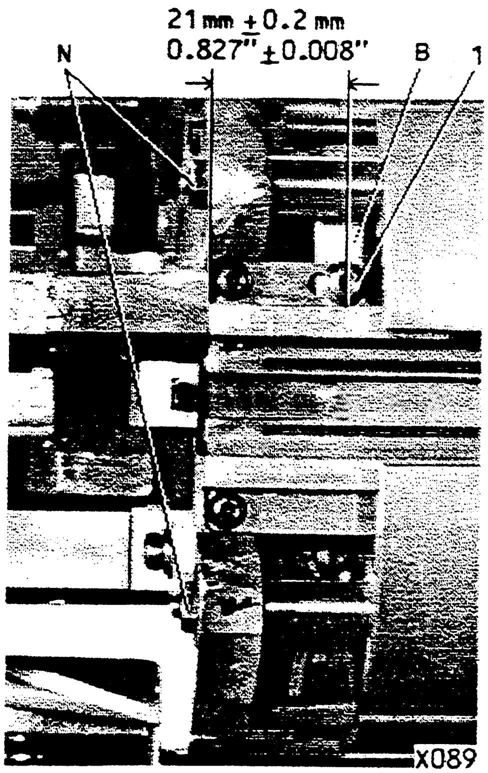

Figure 2-119. TRANSCORIN Sensor Removal, Replacement, and Adjustment

d. Remove plate "B"; disconnect plug X42b from HPO** PCA (refer to Figure 2-119).

e. Remove the screw that attaches the HPO** PCA to plate "B", and remove the PCA.

f. Install the replacement HPO** PCA in reverse removal order.

g. Adjust the PCA for a clearance of 21 mm +/- 0.2 mm (0.827 inch +/- 0.008 inch) between the casting and the center of screw "1" by moving plate "B" (refer to Figure 2-119). Tighten screw "1".

54K. TRANSSADDLE Sensor (FPO** PCA)

54K1. TRANSSADDLE Sensor Removal and Replacement.

a. Power OFF the printer at the operator panel.

b. Swivel off the paper transport arm assembly.

c. Disconnect plug X31a from FPO** PCA (refer to Figure 2-120).

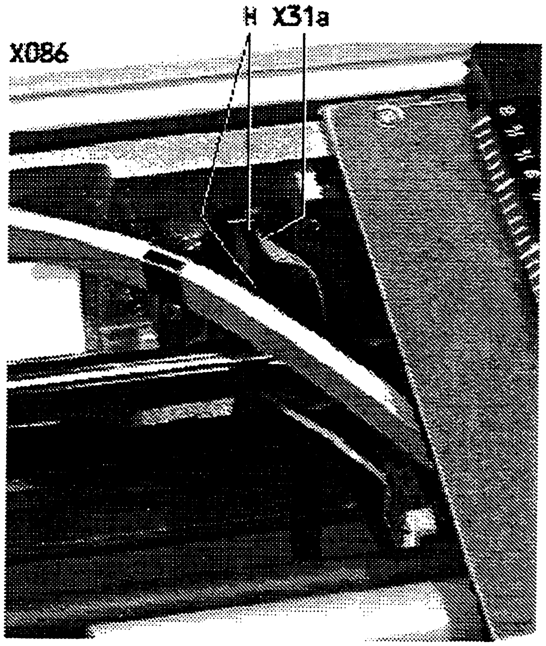

Figure 2-120. TRANSSADDLE Sensor Removal and Replacement

d. Press apart clips "H" and remove the FPO** PCA (refer to Figure 2-120).

e. Install the replacement PCA in reverse removal order.

Paper Conveyor

Routine 55

55A. Conveyor Assembly

55A1. Conveyor Assembly Removal. Estimated time to complete this procedure: 1 hour.

Warning **This routine requires two people. The conveyer assembly weighs 30 pounds (13.6 kg) and is awkward to maneuver in and out of the printer.**

a. Power down printer at operator panel; set the main circuit breaker OFF.

b. Open the rear doors of printer; remove panel cover above developer station (4mm Allen).

c. Remove the air pump (refer to Routine 43F3).

d. From the front of the printer, remove the 2-Tx10 "4" screws that attach bracket "W" at the far side of the loop puller (refer to Figure 2-129).

e. Loosen nut "1" and remove bracket "W". Set bracket to the side.

f. Remove the Tx20 screw that attaches ground cable "E" to the printer casting (accessible from the front on the printer). Remove cable from screw (refer to Figure 2-121).

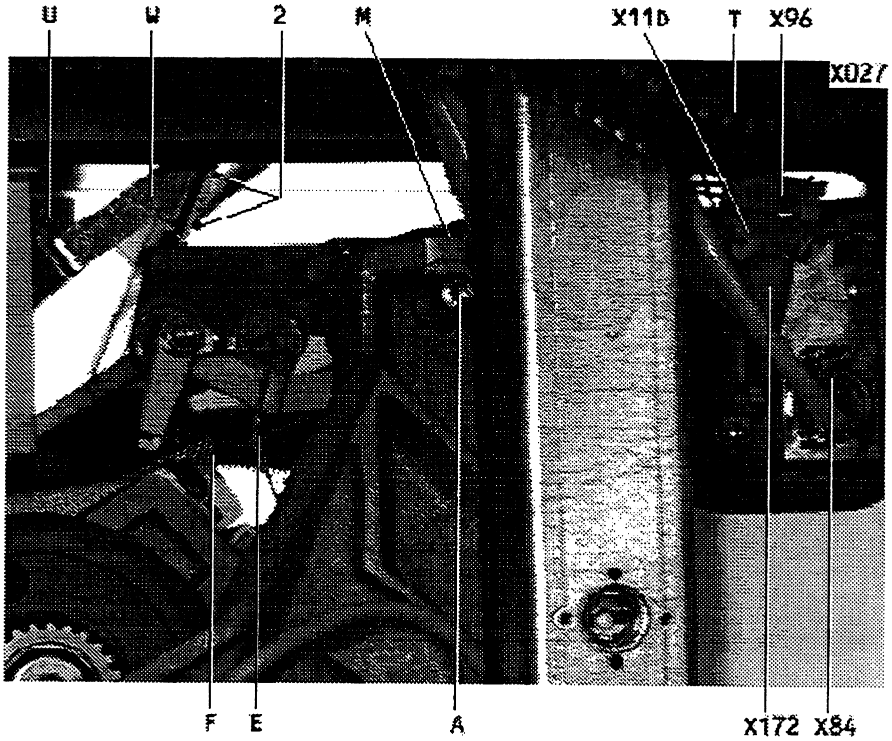

Figure 2-121. Paper Conveyor Removal and Replacement (1)

g. Cut cable tie securing ground cable to casting.

h. Loosen the clamp securing hose “T” to the paper brake and remove hose. The clamp is accessible from the front of the printer, inside the paper input area (refer to Figure 2-121).

i. From the back of the printer, disconnect plugs X96, X11D and X172 (refer to Figure 2-121).

j. Remove connector X84 which is secured by a locking plate; loosen 1-Tx20 screw and swivel locking plate to the side (refer to Figure 2-121).

k. Loosen Tx10 setscrew “M” and slide pin “A” out until it no longer supports the conveyor assembly.

Note Some printers may contain a Tx27 screw (or screw and washer) in the end of pin “A”; remove pin by pulling out on the screw head. Do not unscrew this screw, and make sure that the washer does not jam into the casting.

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l. From the front of printer, remove retaining ring “R” from end of shaft “S” (refer to Figure 2-122).

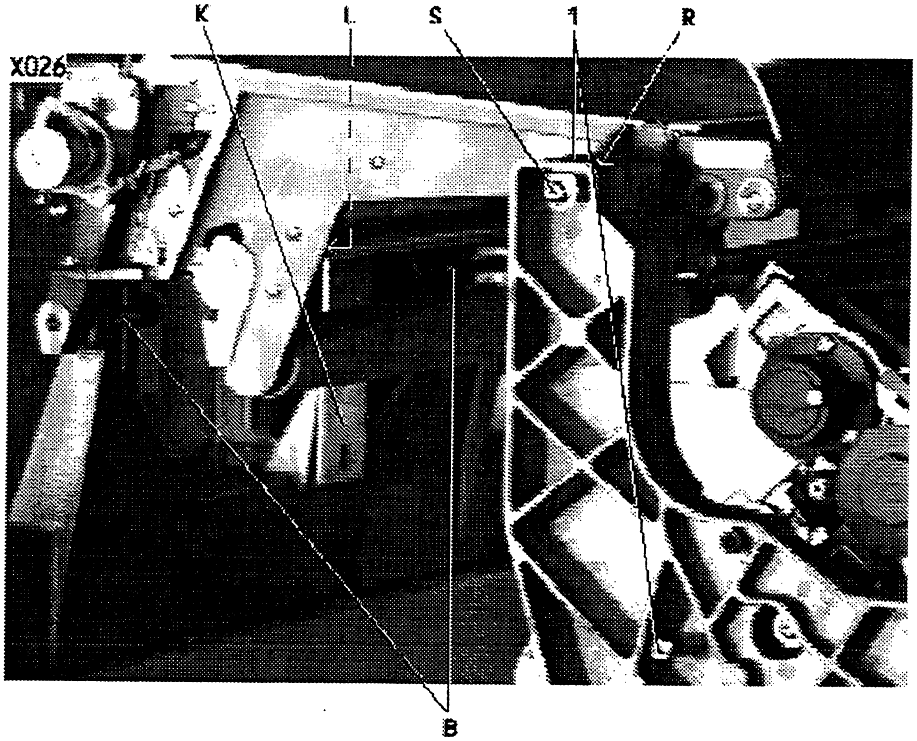


Figure 2-122. Paper Conveyor Removal and Replacement (2)

m. While supporting the conveyer assembly, use needle nose pliers and pull out shaft “S”. Rest conveyer on paper transport assembly (refer to Figure 2-122).

n. Remove the Tx30 screw that attaches plate “K” and remove the plate (refer to Figure 2-122).

Note On newer units this plate is attached by 2 screws.

o. Again, support the assembly; withdraw 2 pins “B” that attach conveyer assembly to fusing unit. Lift complete assembly up and away from printer (refer to Figure 2-122).

Caution Do not move conveyer assembly by, or rest assembly on the loop puller. This is precision aligned at the factory. Please contact your Response Center product support group if alignment damage occurs.

p. Rest the conveyer assembly upright, on its left side only (refer to Figure 2-123).

q. Refer to Routine 55A2 for installation.

55A2. Conveyor Assembly Installation.

a. Reinstall plate “K” and attach with a Tx30 screw (refer to Figure 2-122).

b. Reinstall the paper conveyor assembly with the pin in slot “L” on plate “K” (refer to Figure 2-122). Take care that spring “F” on the rear side is not damaged (refer to Figure 2-121).

c. Continue the installation in reverse removal order.

d. Adjust the shock absorber (refer to Routine 55K2).

55B. Paper Tension Motor

55B1. Paper Tension Motor Removal and Replacement. Estimated time to complete this procedure: 1-1/2 hours.

a. Remove the paper conveyor (refer to Routine 55A1).

b. Remove the Tx20 screw "1" that attaches both end plate "S" and the gearwheel behind it to the tension drive motor. Remove the end plate and gearwheel motor (refer to Figure 2-123.

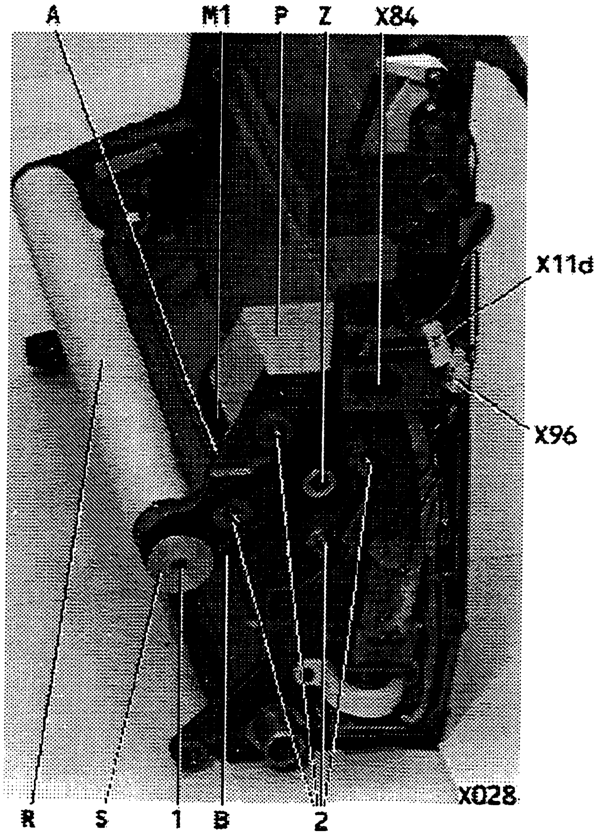


Figure 2-123. Paper Tension Motor Removal and Replacement

c. Remove belt "B" (refer to Figure 2-123).

d. Remove the 2-Tx20 screws that attach cover "P" (refer to Figure 2-123) and remove the cover.

e. Press out plug X84 (refer to Figure 2-123), and remove the single Tx20 screw that attaches the ground cable.

f. Disconnect the 2 white plugs from the capacitor on motor "M1" (refer to Figure 2-123).

g. Loosen the Tx8 setscrew on gearwheel "Z", and remove the gearwheel from the shaft (refer to Figure 2-123).

h. Remove the 4-8 mm nuts and washers "2" that attach motor "M1", and remove the motor (refer to Figure 2-123).

i. Install the replacement motor "M1" in reverse removal order. With a feeler gauge, adjust for a clearance of 3.6 mm +/- 0.3 mm (0.142 inch +/- 0.012 inch) between the milled groove "A" in the casting and gearwheel "Z" (refer to Figure 2-123).

55B2. Tension Roller Pulleys Removal and Replacement.

a. Remove paper conveyer assembly (refer to Routine 55A1).

b. Verify conveyer assembly is resting in the upright position (refer to Figure 2-123).

c. Remove Tx20 screw "1" and plate "S" from assembly.

d. Remove belt "B" from pulleys.

e. Remove old pulley from shaft "1" and replace with new pulley.

f. Loosen Tx8 setscrew on pulley "Z" and remove old pulley from shaft.

g. Install new pulley on shaft "Z". Using a feeler gauge, adjust for a clearance of 3.6mm +/-0.3mm (.0142inch +/- 0.012 inch) between the milled groove "A" in the casting and the inside edge of pulley (refer to Figure 2-123). Tighten setscrew.

h. Install belt "B" onto pulleys.

i. Install plate "S" and secure with screw "1".

j. Install paper conveyer back into printer (refer to Routine 55A2).

55C. Tension Drive Roller

The tension drive roller "R" (refer to Figure 2-123) is not a serviceable part. If the roller needs replacement, the entire paper conveyor assembly must be replaced.

55D. Paper Tension Sensor (PAT** PCA)

55D1. Paper Tension Sensor Removal and Replacement. Estimated time to complete this procedure: 15 minutes.

a. Power down printer at the operator panel; set the main circuit breaker to OFF. Unlock and swivel down the paper transport assembly.

b. Disconnect plug X41 from the PAT** PCA (refer to Figure 2-124).

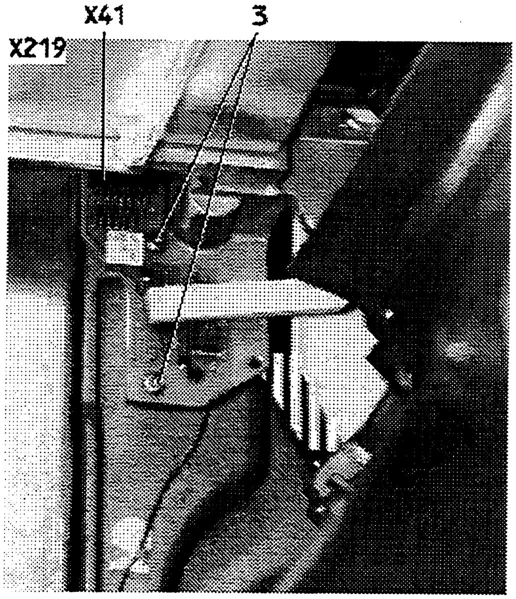


Figure 2-124. Paper Tension Sensor PCA Removal and Replacement

c. Remove the 2-Tx20 screws "3" that attach the PAT** PCA (refer to Figure 2-124).

d. Install the replacement PAT** PCA in reverse removal order. Take care to reconnect X41 properly.

55E. Paper Brake Motor, Drive, and Clutch

55E1. Paper Brake Motor Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Swivel oil bottle "K" to the front (refer to Figure 2-125).

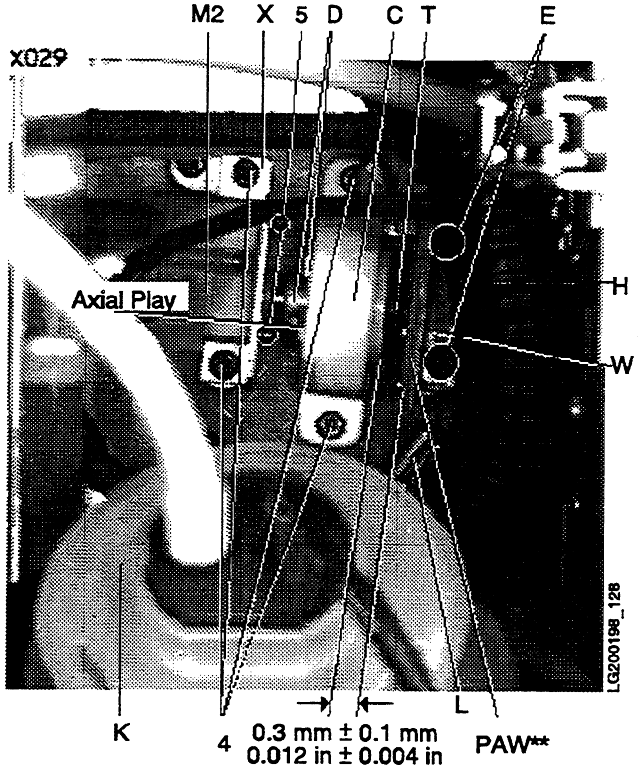


Figure 2-125. Paper Brake Motor, Drive, and Clutch Removal and Replacement

b. Loosen clamp "L" on tube "H" (Phillips screw, attainable from beneath from paper input tray) and remove tube "H" (refer to Figure 2-125).

c. Cut tie wraps from plugs X11d and X96, and disconnect plug X11d (refer to Figure 2-121).

d. Remove the 4-Tx20 screws "4" that attach the motor and track guide (refer to Figure 2-125). Remove cover "C" and motor "M2".

e. Loosen the 2-Tx8 setscrews "D" and remove drive wheel from motor axle (refer to Figure 2-125).

f. Remove 4 screws "5" and bracket "X" to remove the paper brake motor.

g. Reinstall replacement or original paper brake motor, drive, and clutch in reverse removal order.

Note Press out axial air at motor in the direction of the arrow (refer to Figure 2-125).

---

h. Adjust the motor by loosening the 2-Tx20 screws “E”, and moving bracket “W” for a clearance of 0.3 mm +/- 0.1 mm (0.012 inch +/- 0.004 inch) between the magnet timing disk “T” and the Hall sensor on the PAW** PCA (refer to Figure 2-125).

55F. Paper Brake Clock Sensor (PAW** PCA)

55F1. Paper Brake Clock Sensor Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Power OFF the printer at operator panel. Open the center door on the drive side.

b. Swivel the oil bottle “K” to the front (refer to Figure 2-125).

c. Loosen clamp “L” (Phillips screw, accessible from beneath from paper input tray) from tube “H” and remove tube “H” (refer to Figure 2-125).

d. Remove the 2-Tx20 screws “1” (refer to Figure 2-126) attaching the PAW** PCA bracket.

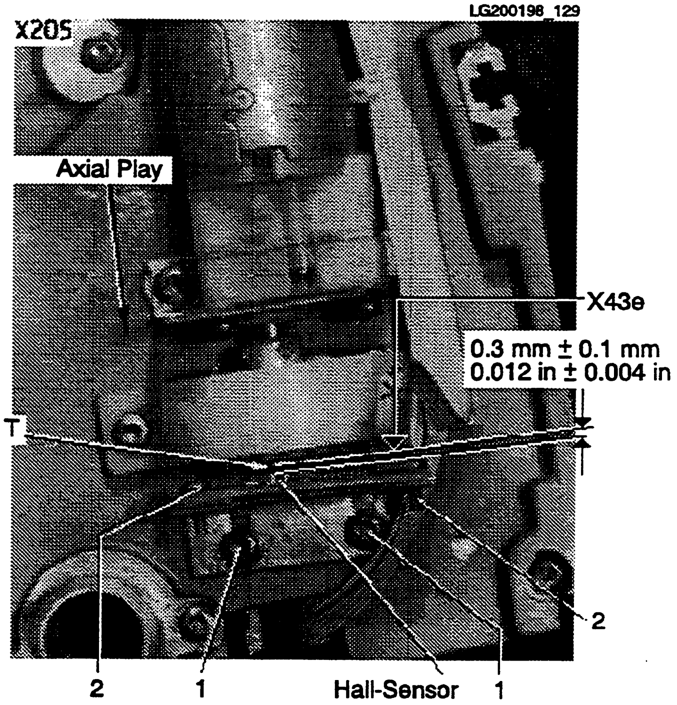


Figure 2-126. Paper Brake Removal, Replacement, Adjustment (1)

e. Disconnect plug X43e (refer to Figure 2-126).

f. Remove the 2-Tx10 screws “2” that attach the PAW** PCA to bracket, and remove the PCA (refer to Figure 2-126).

g. Install the replacement PAW** PCA in reverse removal order.

h. Adjust the PAW** PCA by loosening the 2-Tx20 screws “E”, and moving bracket “W” for a clearance of 0.3 mm +/- 0.1 mm (0.012 inch +/- 0.004 inch) between the magnet timing disk “T” and the Hall sensor on the PAW** PCA (refer to Figure 2-125 and Figure 2-126).

55G. Paper Brake at Magnet Valve

55G1. Paper Brake/Magnet Valve Removal and Replacement. Estimated time to complete this procedure: 10 minutes

a. Power OFF the printer at the operator panel.

b. Loosen the Tx20 screw "S" that attaches the black plastic cover over the magnet valve, and remove the cover (refer to Figure 2-127).

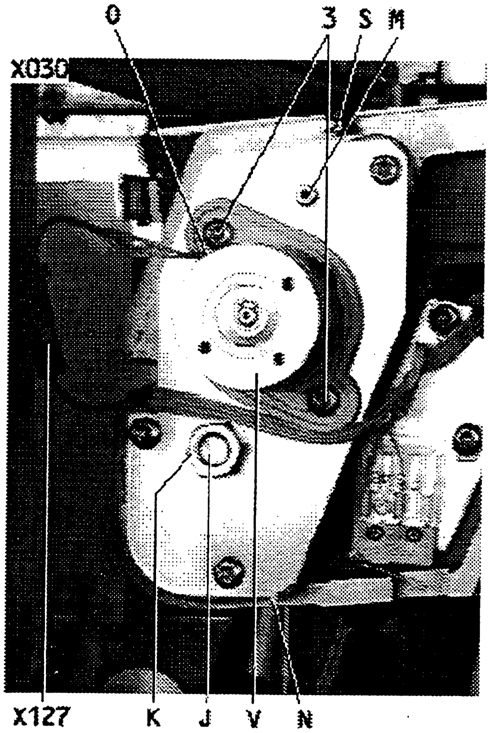


Figure 2-127. Paper Brake Removal, Replacement, Adjustment (2)

c. Disconnect plug X127 (refer to Figure 2-127).

d. Remove the 2-Tx20 screws "3" that attach magnet valve "V", and remove the valve (refer to Figure 2-127).

e. Install the replacement magnet valve in reverse removal order. Make sure that opening "O" is as shown in Figure 2-127, and to insert the black cap into lower groove "N".

55H. Paper Brake Reference Sensor (HPO** PCA)

55H1. Paper Brake Reference Sensor Removal and Replacement. Estimated time to complete this procedure: 30 minutes

a. Power OFF the printer at the operator panel side. Unhinge the cover in front of the fuser station.

b. Loosen the Tx20 screw "S" that attaches the black plastic cover over the magnet valve, and remove the cover (refer to Figure 2-127).

c. Remove the Tx20 screw "4" that attaches bracket "B", and remove the bracket (refer to Figure 2-128).

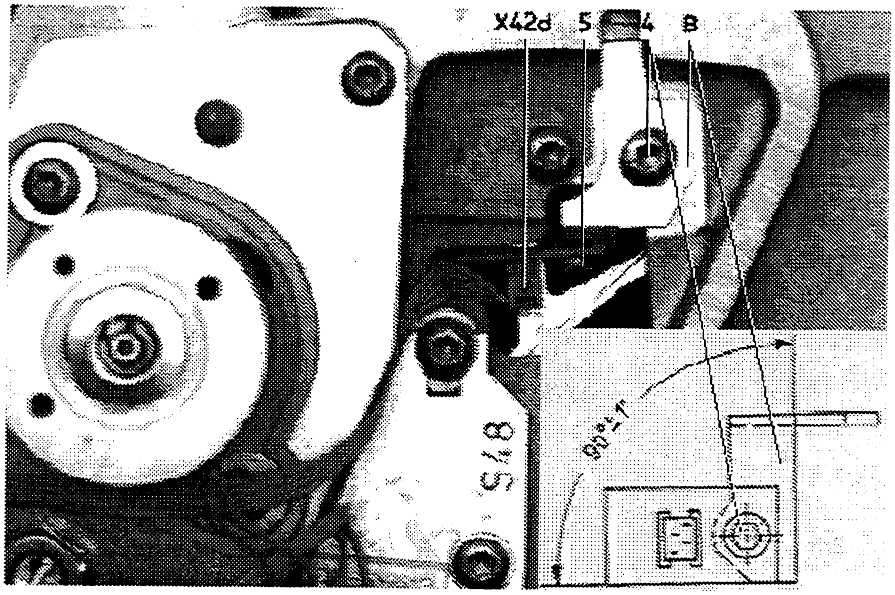


Figure 2-128. Paper Brake Removal, Replacement, Adjustment (3)

d. Disconnect plug X42d (refer to Figure 2-128).

e. Remove the Tx20 screw “5” that attaches the HPO** PCA to bracket “B”, and remove the PCA (refer to Figure 2-128).

f. Install the replacement HPO** PCA in reverse removal order. Make sure to:

  - Adjust the PCA so that it is 90 degrees +/- 1 degree to bracket “B” and flush to a tolerance of 0.3 mm (0.012 inch) (refer to Figure 2-128).
  - Insert black cap into lower groove “N” (refer to Figure 2-127).

55J. Vacuum Paper Brake

55J1. Vacuum Paper Brake Adjustment. Estimated time to complete this procedure: 15 minutes.

a. Insert paper into the printer.

b. Remove the cover from the magnet valve; remove the cap from test point “M” (refer to Figure 2-127).

c. Connect vacuum measuring gauge to test point “M”.

d. Loosen lock nut “K” (13 mm) (refer to Figure 2-127).

e. Start the printer self-test, or print something using the system.

f. Adjust for a vacuum pressure of 425 Pa +/- 25 Pa (4.25 mbar +/- 0.25 mbar), or 1.6 to 1.8 inches of water by turning adjustment screw “J” clockwise (refer to Figure 2-127) to increase the vacuum pressure, or counterclockwise to decrease vacuum pressure.

g. Hold adjustment screw “J” to prevent it from moving; then, secure the adjustment with lock nut “K” (refer to Figure 2-127).

h. Reinstall the cap on test point “M” and the cover on the magnet valve.

55K. Shock Absorber

55K1. Shock Absorber Removal and Replacement. Estimated time to complete this procedure: 15 minutes.

a. Remove nut "1" (refer to Figure 2-129).

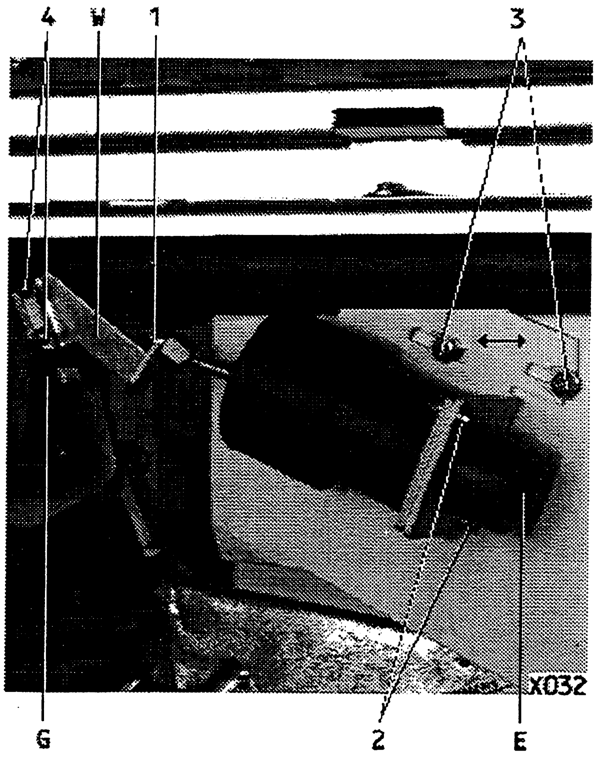


Figure 2-129. Shock Absorber Removal, Replacement, Adjustment

b. Remove the 2-Tx20 screws "2" (refer to Figure 2-129) that attach the shock absorber to the mounting bracket, and remove the shock absorber.

c. Reinstall the replacement shock absorber in reverse removal order.

d. Adjust the shock absorber (refer to Routine 55K2).

55K2. Shock Absorber Adjustment. Estimated time to complete this procedure: 15 minutes.

a. Loosen the 2 screws "3" (refer to Figure 2-129).

b. Move the bracket including the shock absorber to the left until the shock absorber bottoms out, but does not move the rubber bumpers on the loop pullers away from the casting stop (refer to Figure 2-129).

c. Move the bracket including shock absorber away from the left stop position by 2 mm +/- 1 mm (0.079 inch +/- 0.039 inch) and tighten screws "3" (refer to Figure 2-129).

d. Adjust shock absorber with adjustment disk "E" so that loop puller does not bounce when stopped at stopper "G" (refer to Figure 2-129).

Note This is a sensitive adjustment where small adjustments to screw "E" correspond to considerable changes in dampening effect by the shock absorber.

55L. Loop Puller

55L1. Loop Puller Removal and Replacement.

a. Unlock the paper transport swing arm and swivel it down.

b. Unhook the 2 springs "F" (refer to Figure 2-130 and Figure 2-131).

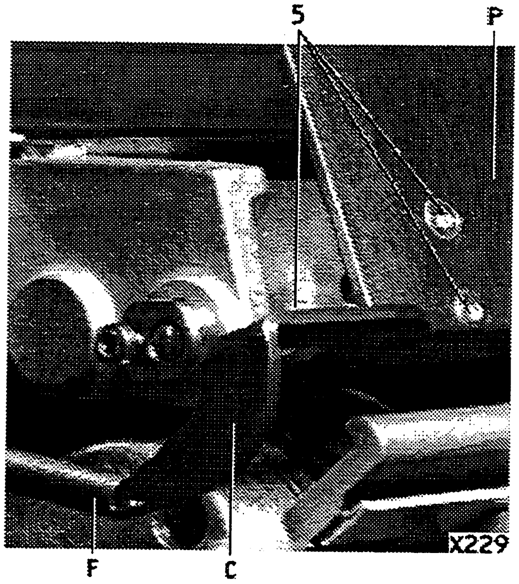


Figure 2-130. Loop Puller Absorber Removal, Replacement, Adjustment (1)

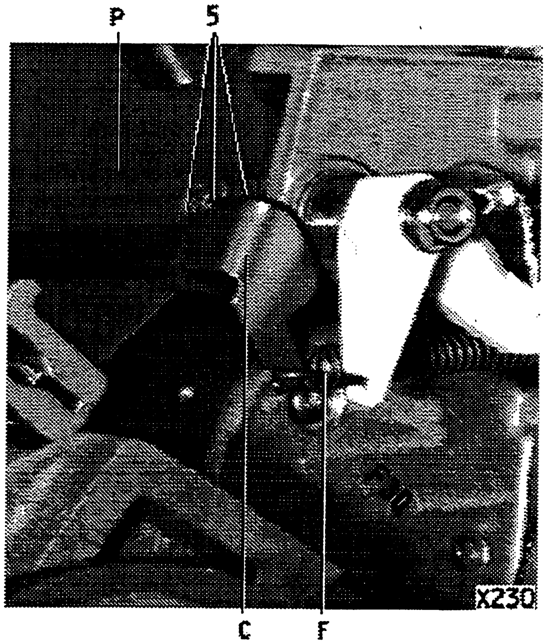


Figure 2-131. Loop Puller Absorber Removal, Replacement, Adjustment (2)

c. Remove the 2-Tx10 screws "4" that attach bracket "W" (refer to Figure 2-129).

d. Remove the 6-Tx20 screws "5" that attach bracket "C" and loop puller "P" (refer to Figure 2-130 and Figure 2-131).

e. Press out rubber bumper pad "G" from below (refer to Figure 2-129).

Note For equalizing mounting tolerances, there are washes between the bumper pad and the plate with some loop pullers. Be sure to reinstall these washers.

---

f. Reinstall replacement loop puller in reverse removal order.

g. Check paper path alignment (refer to Routine 52B1).

55L2. Loop Puller Alignment.

Note This routine requires precision adjustments by factory personnel. Please contact your local Response Center product support before proceeding.

Estimated time to complete this procedure: 1 hour.

Note This is a critical adjustment. Several verifications of alignments are called out in this routine. It is important that accuracy be maintained while verifying all adjustments in order to achieve a correctly positioned paper path.

a. With the mylar gauge in place (refer to Routine 52B1), and both the swivel saddle and pressure roller engaged, loosen Tx20 screw "S" (refer to Figure 2-132). Rotate loop puller eccentric "H" clockwise if the "B" (refer to Figure 2-90) end of the mylar overlaps to the rear of the printer, or counterclockwise if the "B" end of the mylar overlaps to the front of the printer.

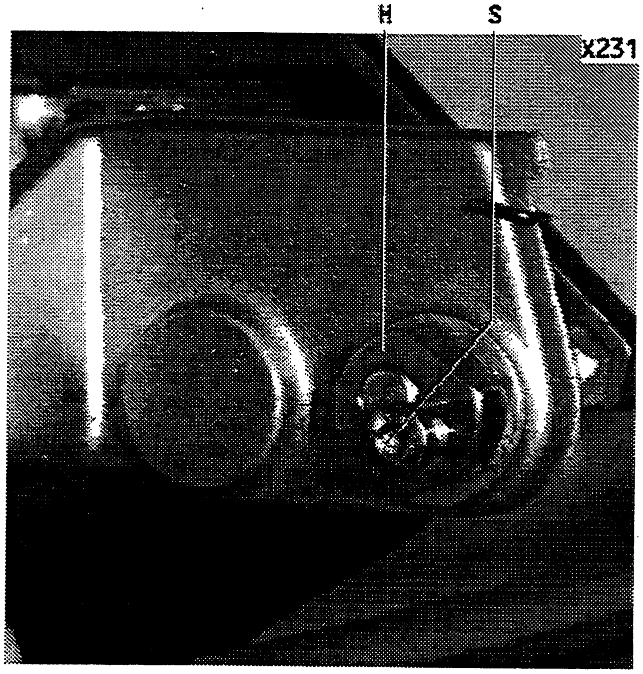


Figure 2-132. Loop Puller Absorber Removal, Replacement, Adjustment (3)

b. Secure locking screw "S" without moving eccentric "H".

c. Swivel off the pressure roller.

d. Verify paper path alignment (refer to Routine 52B1).

Note If adjustment was required in this routine, also check the edge monitoring dynamic adjustment (refer to Routine 67A2), and the fixed wobbler adjustment (refer to Routine 73D3).

Fuser Station

Routine 61

61A. Fuser Assembly

61A1. Fuser Assembly Removal and Installation.

Warning **The fuser assembly weighs approximately 132 pounds (60 kg). To do this procedure safely and avoid injury, 2 people are required.**

a. Power down printer at the operator panel. Open the right door on the drive side, and remove the cover from the cable duct (attached by a single Tx25 screw).

b. Remove the heating element (refer to Routine 62A1).

Note To reduce the weight of the fusing assembly, remove the fuser roller (refer to Figure 2-133).

c. Disconnect plug X219 (refer to Figure 2-133).

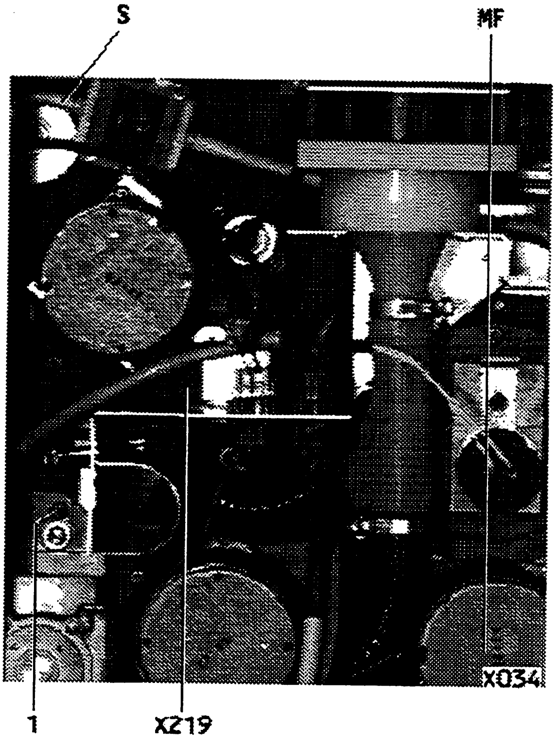


Figure 2-133. Fuser Station Removal and Replacement (1)

d. Unplug oil tube “S” on left side of oil pump and block the opening (refer to Figure 2-133).

e. Disconnect door interlock microswitch S46 (refer to Figure 2-134).

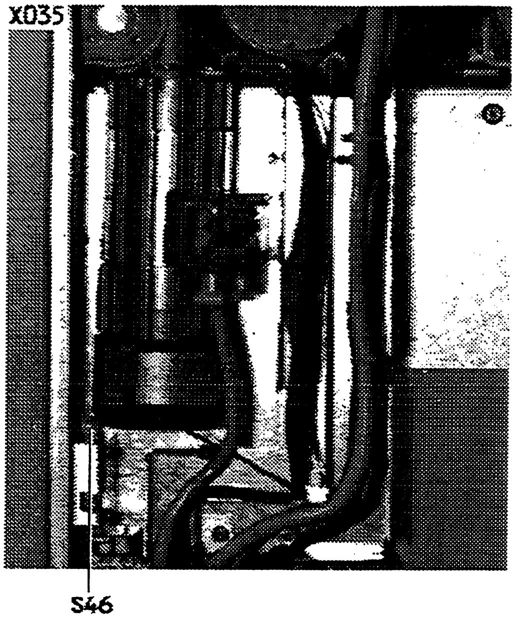


Figure 2-134. Fuser Station Removal and Replacement (2)

f. Disconnect plugs X183 and X193 from the FUP** PCA. Remove the ground cable, attached by a Tx20 screw.

g. Disconnect plugs X246 and X275 from the FUC** PCA.

h. Disconnect plugs X241, X242, X243, and X244 from the FUS** PCA.

i. Disconnect plugs X280 and X281 and remove the cable harness from the fuser assembly bracket.

j. Disconnect plugs X284, X285, X289. Remove the 2 grey cables from cable harness.

k. Loosen clamp "K" at stacker side and remove the blower tube (refer to Figure 2-135).

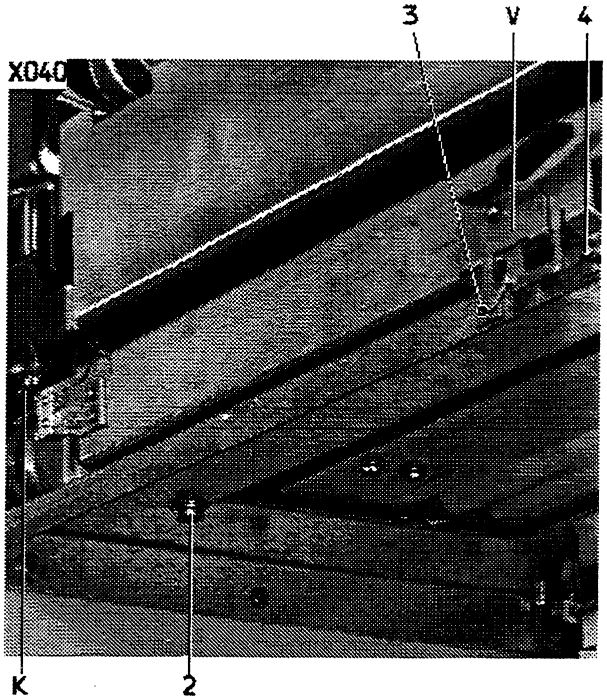


Figure 2-135. Fuser Station Removal and Replacement (3)

l. Take the cable harness out of the cable duct, roll it up, and secure it to the fuser assembly to prevent it frombeing damaged when the fuser assembly is removed.

m. Remove felt unit ground cable “G” (refer to Figure 2-136).

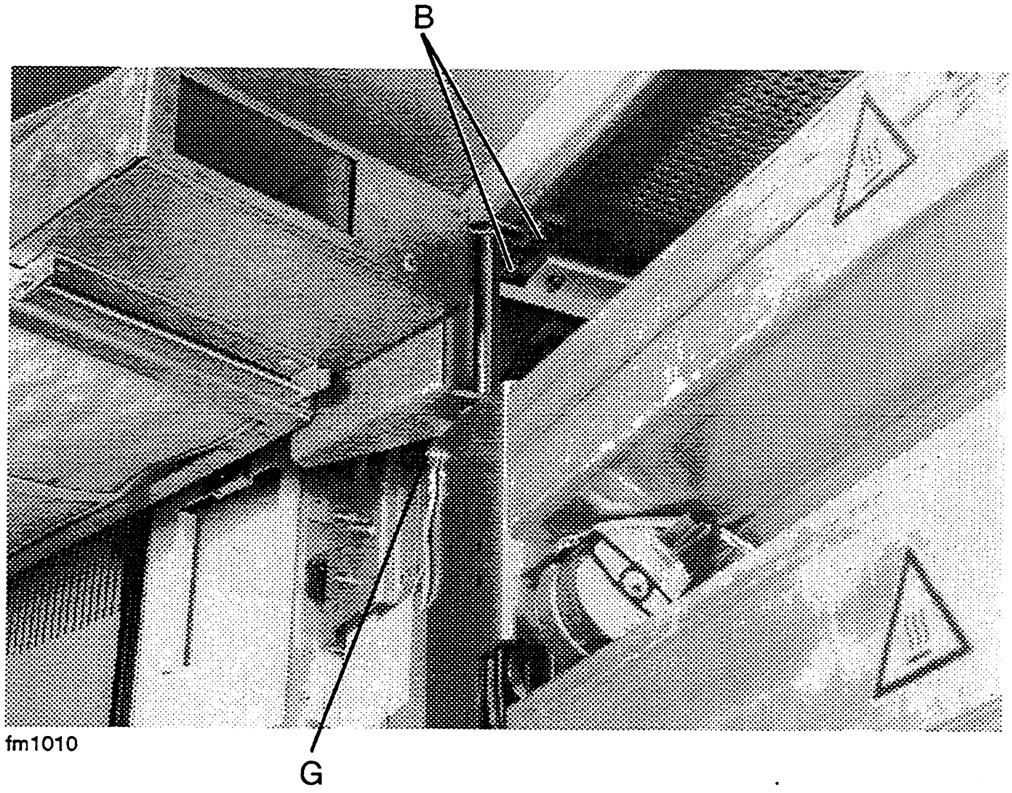


Figure 2-136. Fuser Station Removal and Replacement (4)

n. Remove Tx30 screw “1” (refer to Figure 2-133).

o. Remove Tx30 screw “2” (refer to Figure 2-135).

p. Remove Tx10 screw “3”. Loosen Tx10 screw “4” and turn lock lever “V” to down (refer to Figure 2-135).

q. Remove the 8-Tx20 screws “5” that attach frame “R”, and remove the frame (refer to Figure 2-137).

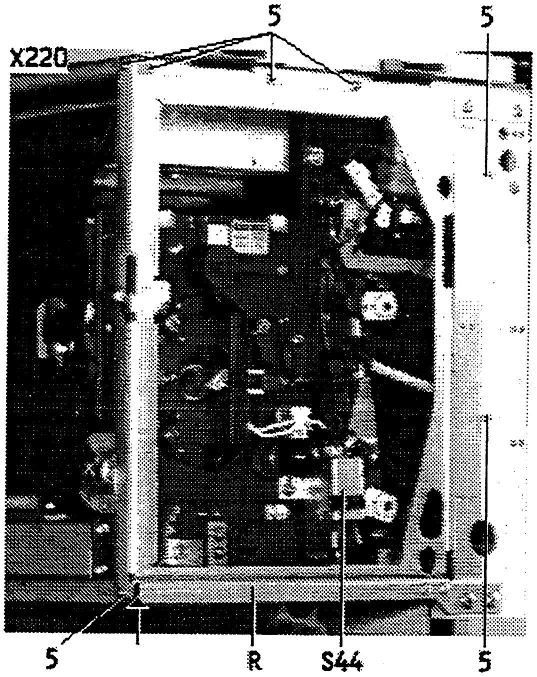


Figure 2-137. Fuser Station Removal and Replacement (4)

r. Remove 2-Tx25 screws “B” securing the top hinge bracket (refer to Figure 2-136).

Note The fusing assembly is mounted on 2 locating pins located at the rear of the assembly, and a special 2 piece cup spacing washer between the assembly and frame at “2” (refer to Figure 2-135). Take care not to lose the spacing washer. Alignment problems could result if the assembly is installed without these washers in place.

---

s. With the help of a second person, remove the fusing assembly by first sliding off the locating pins towards the front of the printer, then swinging it out toward the stacker end.

Caution Take care that the hinge bracket does not catch on the top of the printer.

---

t. Install the replacement fuser station in reverse removal order.

u. Check edge monitoring dynamic adjustment (refer to Routine 67A2) and adjust as necessary.

61B. Fuser Roller Drive Motor

61B1. Fuser Roller Drive Motor Removal and Replacement.

a. Power OFF the printer at the operator panel.

b. Remove the fuser roller (refer to Routine 62B1).

c. Open the door in front of the fuser station on the drive side. Remove the Tx25 screw that attaches the cable duct cover, and remove the cover.

d. Remove the cover from the FUS** PCA.

e. Disconnect plug X241 from the FUS** PCA.

f. Remove the 4-Tx25 screws "4" (refer to Figure 2-138).

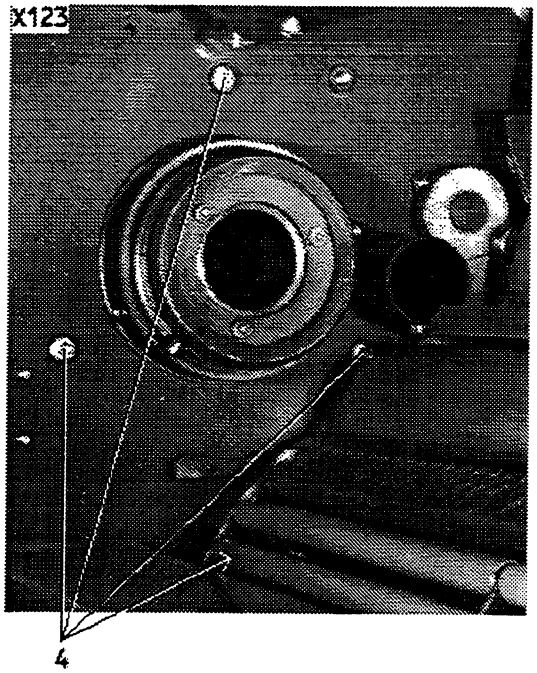


Figure 2-138. Fuser Roller Drive Motor Removal and Replacement (1)

g. Remove motor "MF" including fuser roller bearing (refer to Figure 2-139).

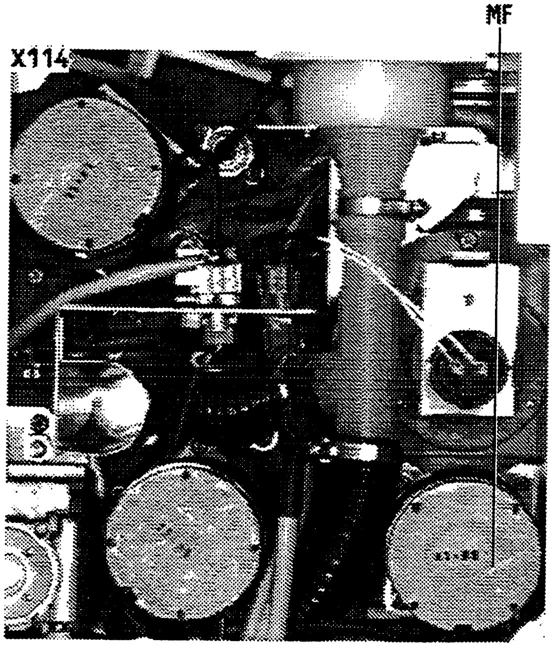


Figure 2-139. Fuser Roller Drive Motor Removal and Replacement (2)

h. Install replacement drive motor in reverse removal order.

Fuser Roller and Heating Element

Routine 62

62A. Heating Element

62A1. Heating Element Removal and Replacement. Estimated time to complete this procedure: 10 minutes.

a. Power down printer at the operator panel. From the front of the printer, remove the cover in front of the fuser station.

b. Disconnect plug X279 (refer to Figure 2-140).

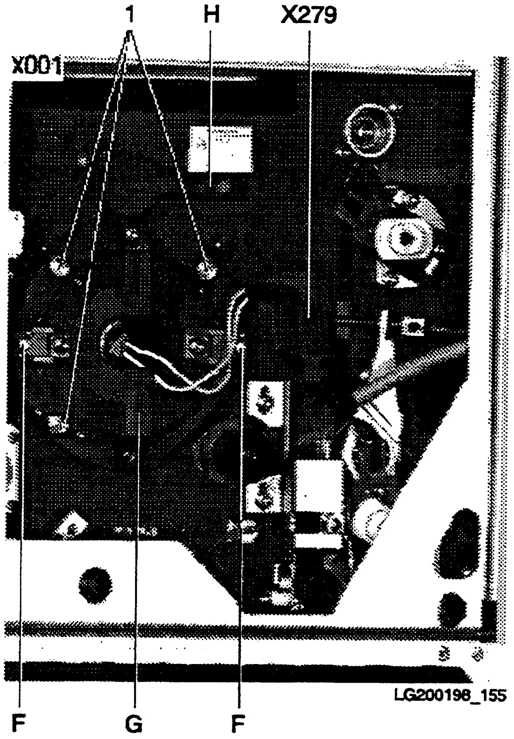


Figure 2-140. Heating Element/Fuser Roller Removal and Replacement (1)

c. From the back of the printer, open the right rear door; disconnect plug X280 (refer to Figure 2-141).

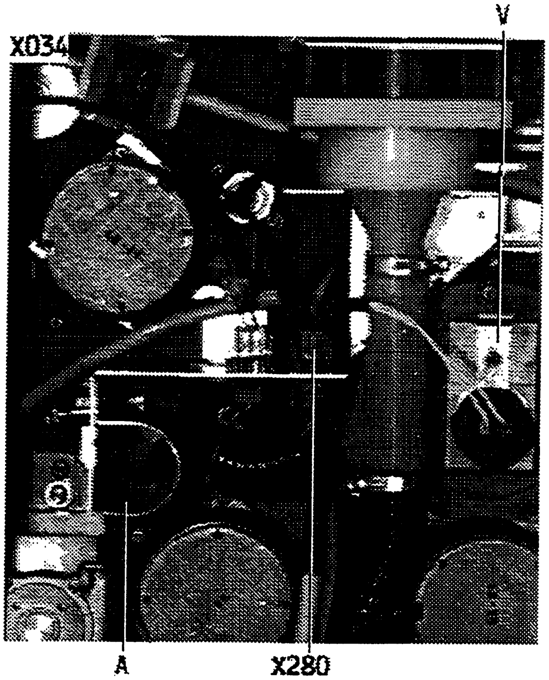


Figure 2-141. Heating Element/Fuser Roller Removal and Replacement (2)

d. Raise the heating element lock bracket "V" (refer to Figure 2-141) upward, and slide the heating element out towards you. Take care not to damage plug X279, or the heating element.

Caution When removing the heating element, do not touch the glass bulb. Touching the glass could reduce the life of the bulb. If the glass is accidentally touched, clean it thoroughly with alcohol after it has cooled.

---

e. Place the heating element in tray "A" and allow it to cool (refer to Figure 2-141).

f. Install the replacement heating element in reverse removal order.

62B. Fuser Roller

62B1. Fuser Roller Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

Warning **The printer should be cold to do this procedure. However, if it is necessary to do this procedure while the fuser roller is hot, always wear heavy insulated gloves, to protect against possible burns.**

---

a. Remove the heating element (refer to Routine 62A1).

b. Swivel open the cleaning felt assembly "R" (refer to Figure 2-142).

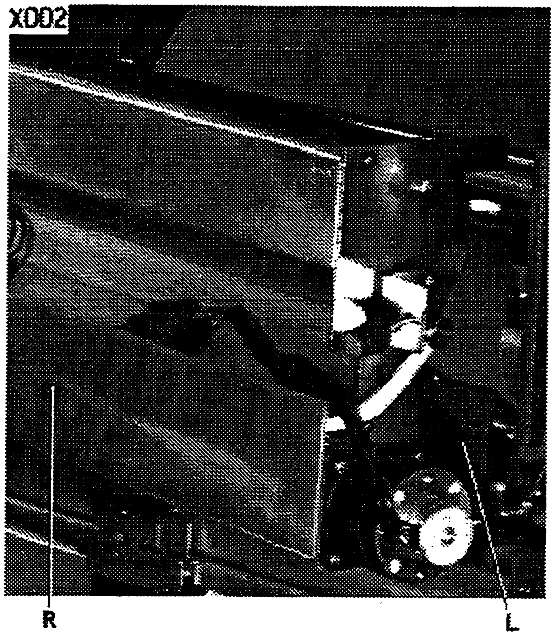


Figure 2-142. Heating Element/Fuser Roller Removal and Replacement (3)

c. Swivel up the sensor bar with lever "H" (refer to Figure 2-140).

d. Swivel open the cleaning blade assembly "L" (refer to Figure 2-142).

e. Unscrew the 3 wing screws "1" that secure the fuser roller (refer to Figure 2-140).

f. Pull out the fuser roller at handle "G" (refer to Figure 2-140) with one hand, while using your other hand to support the roller as it is withdrawn. If the roller is tight, pull reasonably hard out the front of the printer.

Note The roller may be tight due to the different expansion of the metals in the printer. It may be necessary to allow this area to cool before continuing to remove the roller assembly.

---

g. Set the roller on end and remove the flange per Routine 62B2.

62B2. Fuser Roller Flange Removal, Cleaning, and Replacement.

a. Unlatch the flange by loosening the two knurled knobs “N” (refer to Figure 2-143).

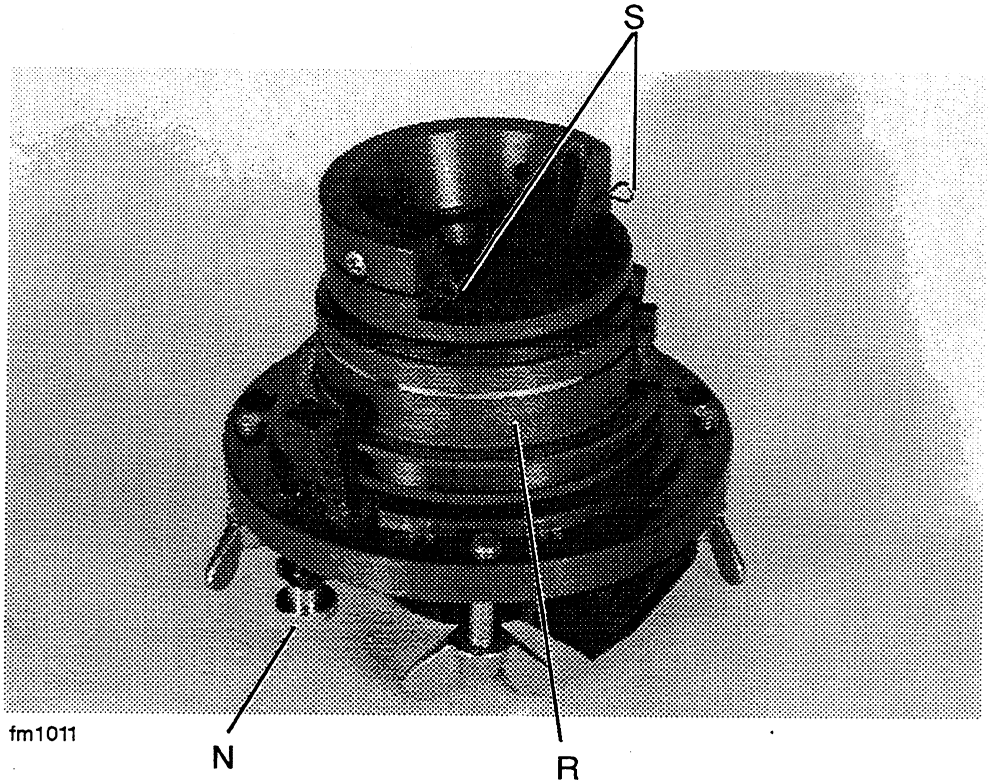


Figure 2-143. Fuser Roller Flange Removal, Cleaning, and Replacement (1)

b. Lift the flange from the roller and place it on a covered surface.

c. Remove the flange dirt collector by pressing outward on locking rings “S” and lifting it off the locating posts (refer to Figure 2-143).

d. With a vacuum, clean the flange dirt collector and the dirt collecting groove in the flange.

e. If replacing the fuser roller, remove and discard the expansion rings “R” (refer to Figure 2-143) from the flange, and the fuser roller drive coulping “C” (refer to Figure 2-144). Replace them with those supplied with the new fuser roller.

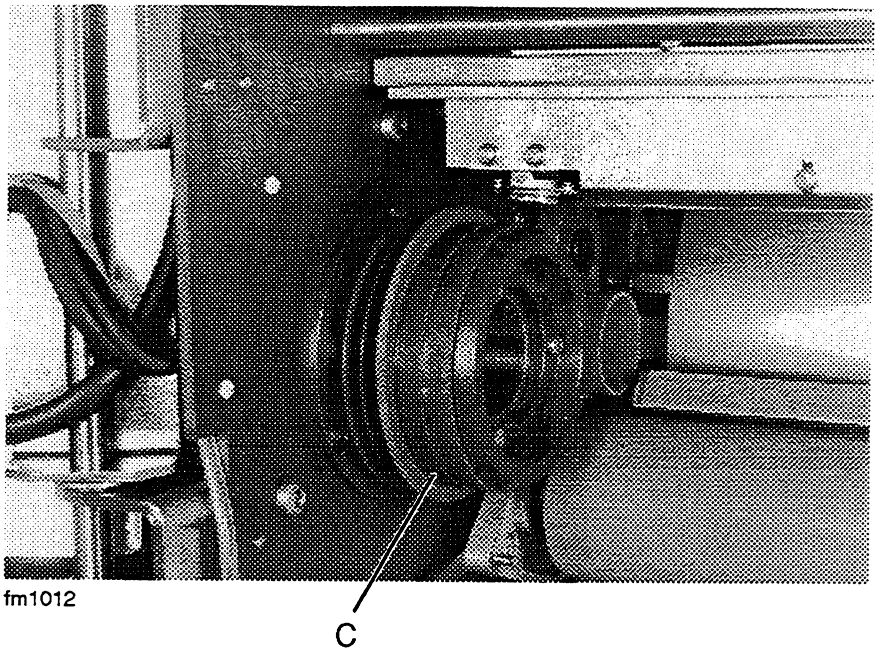


Figure 2-144. Fuser Roller Flange Removal, Cleaning, and Replacement (2)

f. Reassemble the flange and reinstall it on the fuser roller.

62C. Temperature Monitoring

Warning **The fuser assembly may be hot when attempting to work in this area. Allow the fuser area to cool in order to avoid possible burns.**

62C1. Temperature Sensor Replacement. Estimated time to complete this procedure: 30 minutes.

Tools required:

- Feeler gauge

a. Power down printer at operator panel; set the main circuit breaker OFF.

b. Open the fuser station door; swing open the felt unit door.

c. Swing out fumes filter duct from above fuser roller.

d. Swivel the slewable sensor strip up using lever "H" (refer to Figure 2-140).

e. Loosen the 2-Tx10 screws "A" on the slewable sensor strip. Remove the sheet metal cover "B" (refer to Figure 2-145).

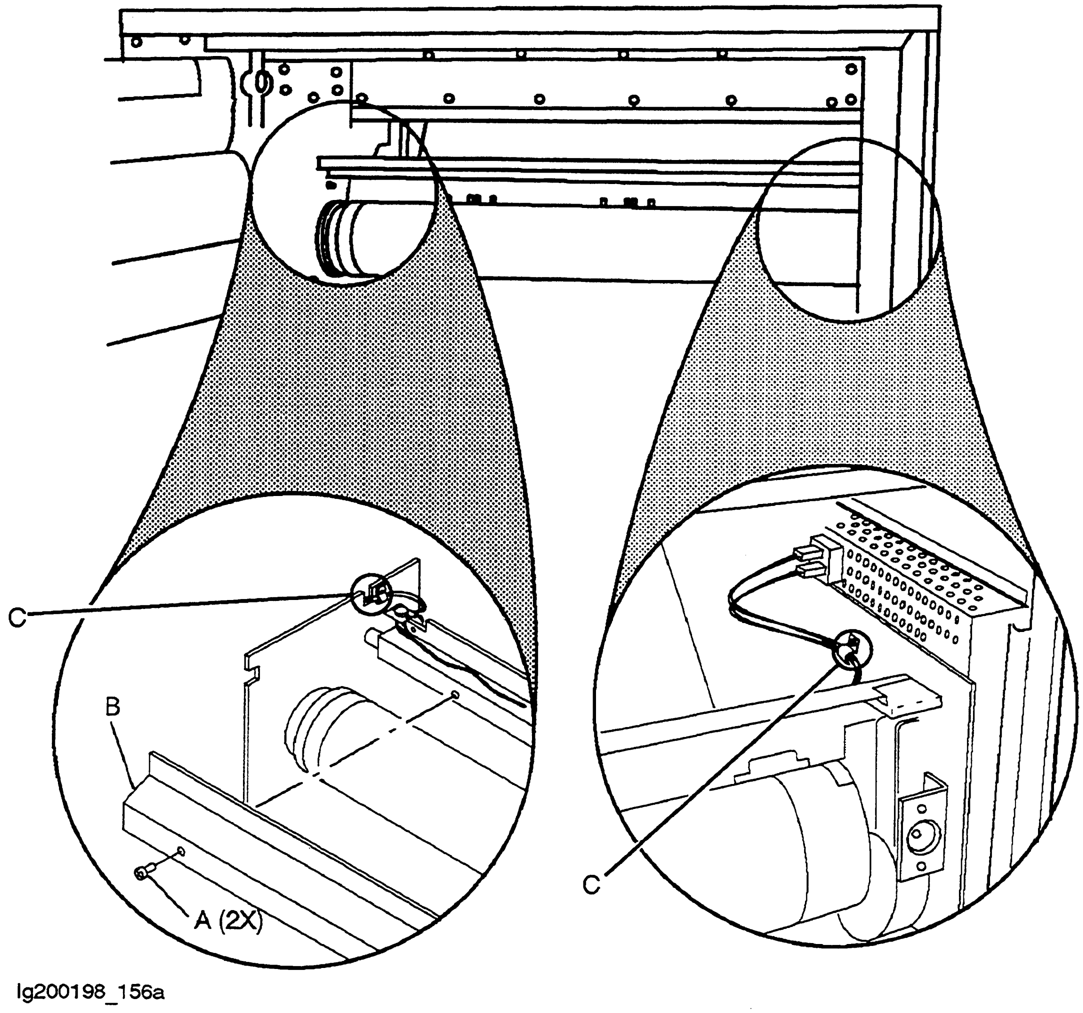


Figure 2-145. Temperature Monitoring (1)

f. Loosen the Tx10 screws securing the cable clamps; remove the cables.

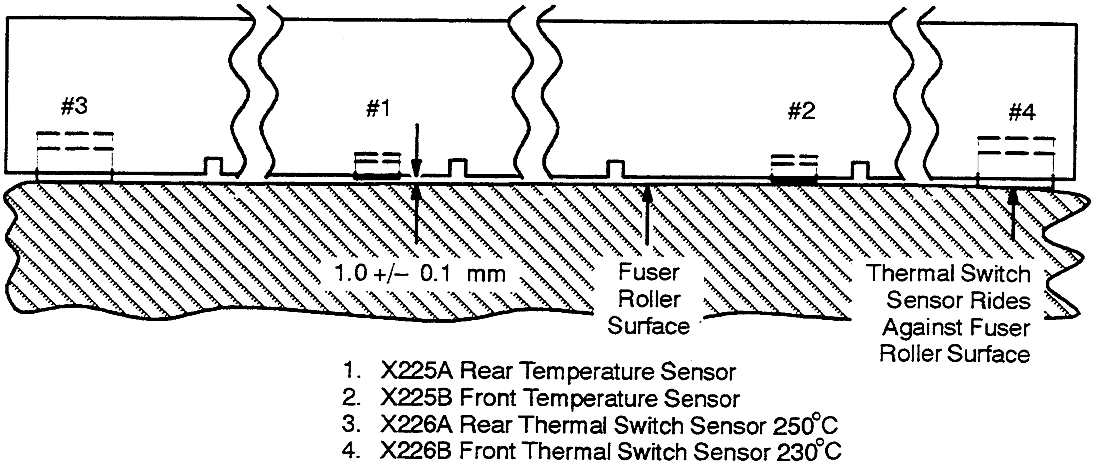
g. Loosen the Tx10 screw(s) securing the duct covers on the sensor strip. Remove covers as necessary.

Note The cables may be routed either on the right side to a connector plate or through the left side into the fuser motor area, depending on the revision of printer being repaired.

---

h. Remove foil tape from around wires.

i. Unplug the connector for the suspect sensor (refer to Figure 2-146).


#3
#1
#2
#4
1.0 +/– 0.1 mm
Fuser Roller Surface
Thermal Switch Sensor Rides Against Fuser Roller Surface
1. X225A Rear Temperature Sensor
2. X225B Front Temperature Sensor
3. X226A Rear Thermal Switch Sensor 250°C
4. X226B Front Thermal Switch Sensor 230°C

198_079b

Figure 2-146. Temperature Monitoring (2)

j. Loosen 2-Tx10 screws "D" attaching the sensor mounting bracket to the sensor strip (refer to Figure 2-147).

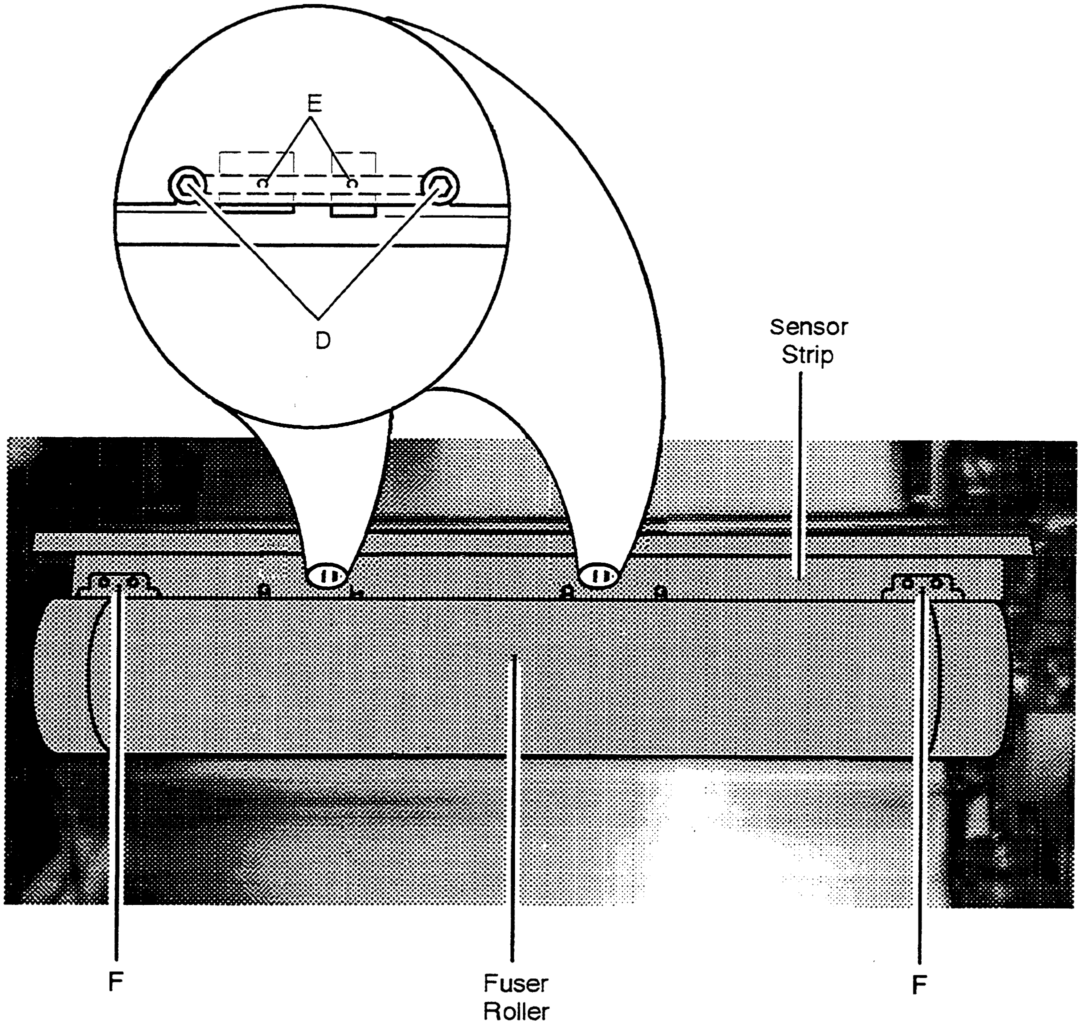


Figure 2-147. Temperature Monitoring (3)

k. Remove screw Tx10 "E" securing sensor in mounting bracket; slide out sensor (refer to Figure 2-147).

l. Replace new sensor in mounting bracket and secure.

m. Label the connector of the new replacement sensor "A" or "B" for later identification:

- "A"; X225A Rear Temperature Sensor
- "B"; X225B Front Temperature Sensor

n. Loosely mount bracket on slewable sensor strip. Using a feeler gauge, set the distance between the sensor and the fuser roller to 1 mm +/-0.1 mm (0.039 inch +/- 0.004 inch) (refer to Figure 2-146).

o. Tighten screws "D".

p. Wrap wires with new foil. Slide wrapped wires under clamps and secure; be careful not to pinch wires.

q. Reinstall remaining covers on sensor strip. Swivel sensor strip down to normal position.

r. Verify fuser roller temperature for proper heating (refer to Routine 62D1, Temperature Adjustment).

62C2. Thermal Switch Replacement. Estimated time to complete this procedure: 30 minutes.

a. Power down printer at operator panel; set the main circuit breaker OFF.

b. Open the fuser station door; swing open the felt unit door.

c. Swing out fumes filter duct from above fuser roller.

d. Swivel the slewable sensor strip up using lever "H" (refer to Figure 2-140).

e. Loosen the 2-Tx10 screws "A" on the slewable sensor strip. Remove the sheet metal cover "B" (refer to Figure 2-145).

f. Loosen the Tx10 screws securing the cable clamps "C"; remove the cables (refer to Figure 2-145).

Note The cables may be routed either on the right side to a connector plate or through the left side into the fuser motor area, depending on the revision of printer being repaired.

---

g. Loosen the Tx10 screw(s) securing the duct covers on the sensor strip. Remove covers as necessary.

h. Remove foil tape from around wires.

i. Unplug the connector for the suspect switch (refer to Figure 2-146).

j. Replace the defective thermal switch, and position the new switch on the sensor strip. Verify that the switch makes contact with the fuser roller when the strip is rotated to its normal operating position.

Note The front and rear thermal switches are calibrated for different temperatures. The rear switch is set for 250° C. The front switch is set for 230° C. Verify the correct switch is used in the correct location.

---

k. Label the connector of the new replacement switch "A" or "B" for later identification:

- "A"; X226A Rear Temperature Switch 250° C
- "B"; X226B Front Temperature Switch 230° C

l. Wrap wires with new foil. Slide wrapped wires under clamps and secure; be careful not to pinch wires.

m. Reinstall remaining covers on sensor strip. Swivel sensor strip down to normal position.

n. Verify fuser roller temperature for proper heating (refer to Routine 62D1, Temperature Adjustment).

62D. Fuser Roller Temperature

62D1. Temperature Adjustment. Estimated time to complete this procedure: 45 minutes

Tools required:

- RATEC temperature measurement tool, HP part number 0853-0091.

a. Verify the correct height of the temperature sensors (refer to Routine 62C1).

b. Verify thermal switches are in contact with the fuser roller.

c. Remove paper from the paper path.

d. Open tractors to maximum width.

e. Verify fusing temperature is set to *Normal* (Menu 1.10).

f. Open the right rear door of the printer, and defeat the door open switch so that K-10 can energize.

g. Open door of submodule 3 (4 mm Allen), and swing it open to access the FUM** PCA.

Note

When installing a new FUM** PCA, the adjustable pots ("P1" and "P2") should be factory set to 3K Ohms. If at power up, the printer displays erroneous overtemp/undertemp conditions, verify the pot settings.

---

h. Swing open the outer fuser station door above the stacker assembly.

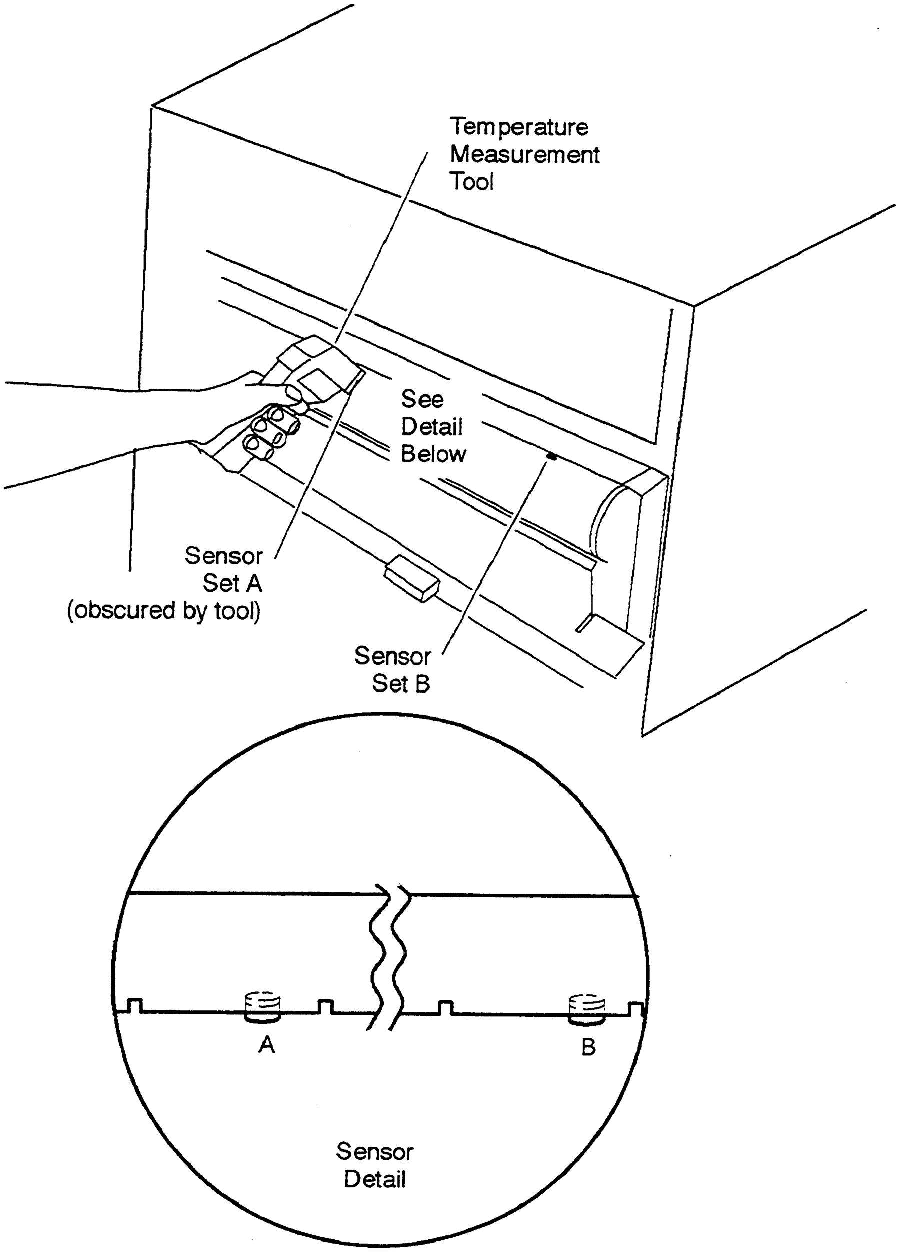
i. Press *CHECK RESET* on the front operator panel to re- initialize the printer. Wait for the Sequence LED to go off on the front panel, indicating the fuser is at "NORMAL" temperature.

Note

It is important to measure the temperature of the fuser roller immediately after the heater lamp has stopped cycling ON and OFF, in order to read the maximum temperature limit of the heating cycle.

---

j. Immediately after the fuser lamps have stopped cycling ON and OFF, quickly swing open the cleaning felt door. Using the RATEC temperature gun, aim the gun from a distance of 1 inch (25 mm) from the fuser roller at points "A" and "B" (just below the sensors). Refer to Figure 2-148.


Temperature Measurement Tool
See Detail Below
Sensor Set A (obscured by tool)
Sensor Set B
A
B
Sensor Detail

198_160a

Figure 2-148. Fuser Roller Temperature Adjustment (1)

The following temperatures should be noted:

Printer	Blue Teflon Fuser Roller	Black Graphite Fuser Roller
F100	215° C +/- 5° C	205° C +/- 5° C
F135	225° C +/- 5° C	215° C +/- 5° C

If the temperatures are within these specifications, no further adjustments are necessary, otherwise continue with the next step.

k. If the temperatures are out of specification, adjust pots "P1" and "P2" on the FUM** PCA (refer to Figure 2-149).

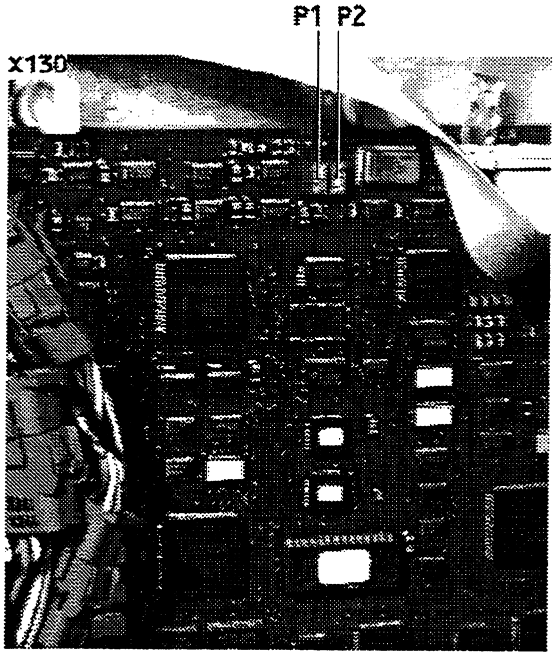


Figure 2-149. Fuser Roller Temperature Adjustment (2)

Note

Pot "P1" monitors sensor "B", and pot "P2" monitors sensor "A". Turning the pot clockwise one turn increases the fuser temperature approximately 3° C. Turning the pots multiple turns at a time may cause erroneous overtemp/undertemp errors to occur.

l. After adjusting the pot(s), allow the fuser roller temperature to stabilize to the new setting. It will be necessary to wait at least one complete heating cycle before measuring the new temperature.

m. Take readings of the new temperatures at the fuser roller.

n. Repeat the adjustment procedure until the fuser roller temperature is within specification.

Pressure Roller Assembly

Routine 63

63A. Pressure Roller

63A1. Pressure Roller Removal and Replacement. Estimated time to complete this procedure: 15 minutes

a. Power OFF the printer at the operator panel. Swivel off the cover under the fuser station.

b. Unlock and swivel down the roller saddle assembly.

c. Support the pressure roller with your left hand, and pull handle "L" to the front of the printer. Now, slide the roller off of the locating pin and remove it from the fuser station (refer to Figure 2-150).

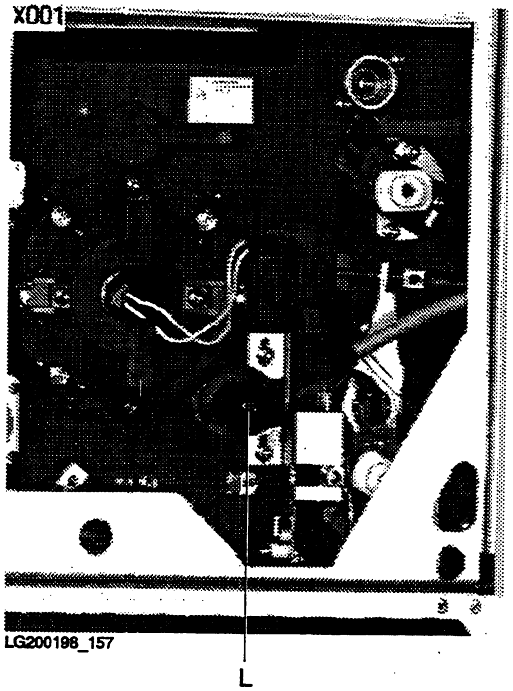


Figure 2-150. Pressure Roller Removal and Replacement

d. Install the replacement pressure roller in reverse removal order.

63B. Pressure Roller Stepper Motor

63B1. Stepper Motor Removal and Replacement. Estimated time to complete this procedure: 30 minutes

a. Power OFF the printer at the operator panel.

b. Open the right door on the drive side. Remove the Tx25 screw that attaches the cover on the cable duct, and remove the cover.

c. Cut the tie-wraps that secure the cable harness, and disconnect plug X241.

d. Remove the 4-Tx25 screws "1" that attach motor "MA", and remove the motor (refer to Figure 2-151).

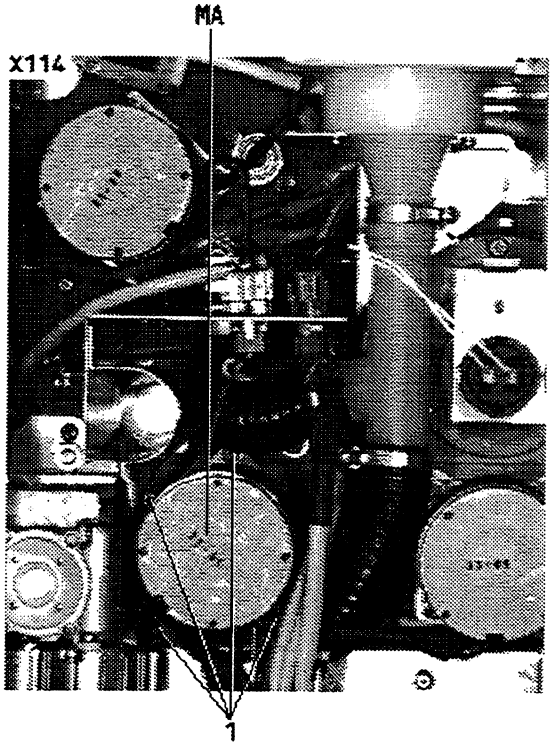


Figure 2-151. Stepper Motor Removal and Replacement

e. Install the replacement motor in reverse removal order. Take care to position the torque bushing properly.

Note If the torque bushing does not form a snug connection between the motor coupling and shaft coupling, both couplers and the torque bushing should be replaced.

63C. FIXPRESS Sensor (FPO** PCA)

63C1. FIXPRESS Sensor Removal and Replacement. Estimated time to complete this procedure: 10 minutes

This sensor regulates the swivel ON/swivel OFF position of the pressure roller.

a. Power OFF the printer at the operator panel.

b. Disconnect plug X31b.

c. Press holding brackets that attach the PCA, and remove the PCA.

d. Install a replacement FPO** PCA in reverse removal order.

63C2. FIXPRESS Sensor Adjustments. Estimated time to complete this procedure: 30 minutes

a. Power OFF the printer at the operator panel.

b. Loosen the Tx6 setscrew "A" (refer to Figure 2-152).

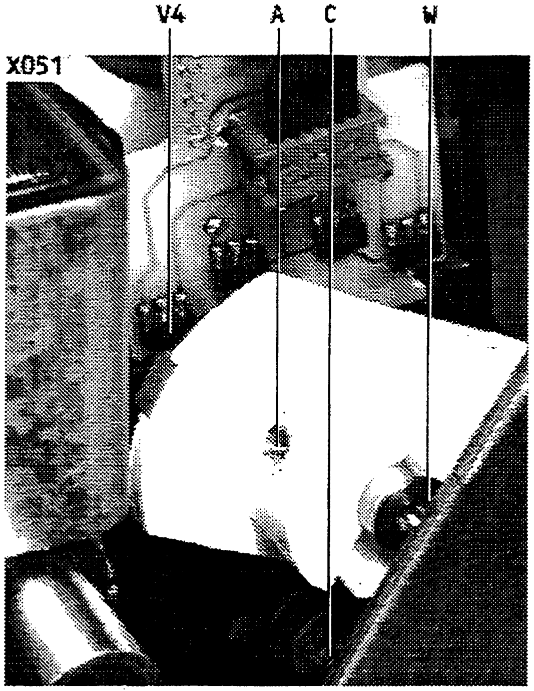


Figure 2-152. Hall Sensor Clearance Adjustment (1)

c. Move the magnet holder on shaft "W" until the clearance between the magnet and the hall effect sensor is 1 mm +/- 0.8 mm (0.039 inch +/- 0.031 inch) (refer to Figure 2-152).

d. Tighten setscrew "A".

e. Rotate the magnet holder clockwise by hand until it stops. This should be the maximum swiveled off position.

f. Loosen the Tx20 screw "C" attaching the FPO** PCA mounting bracket. Rotate the mounting bracket until the sensors on the PCA are in the correct position to the magnet (refer to Figure 2-153).

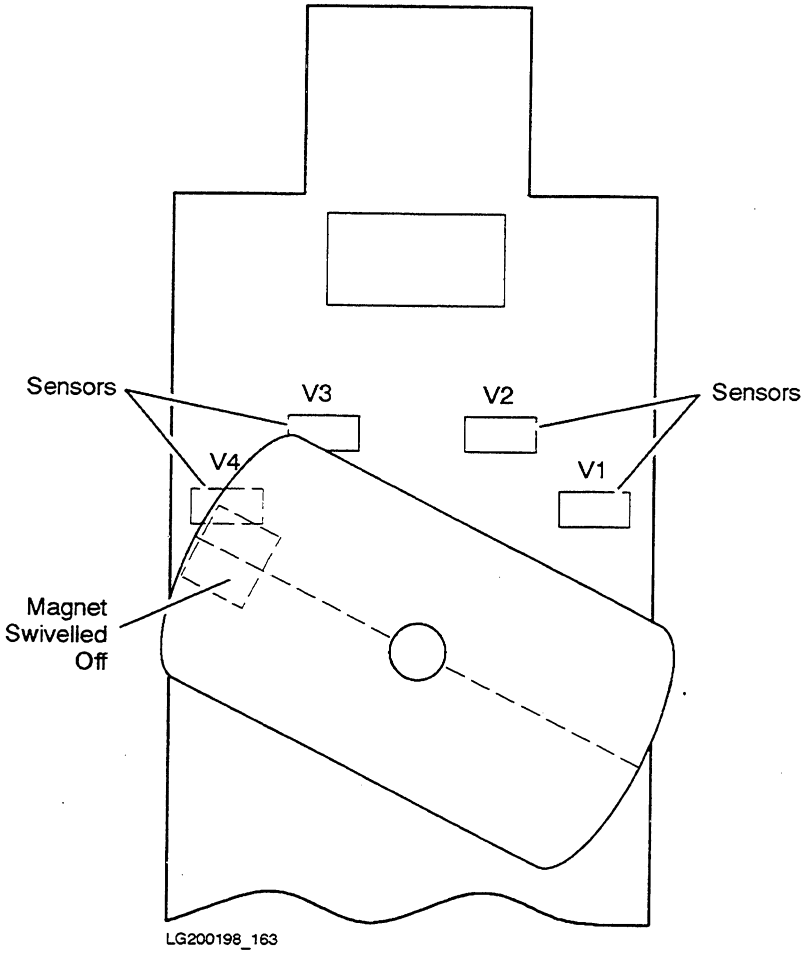

Sensors
V3
V2
Sensors
V4
V1
Magnet
Swivelled
Off
LG200198_163

Figure 2-153. Hall Sensor Clearance Adjustment (2)

g. Tighten screw "C" and verify the position again.

63D. Pressure Roller Pressure

Setup:

- Printer must be cold.
- Routines 63D1, 63D2, and 63D3, must be performed in sequence.

Tools Required:

- 2 feeler gauges
- 4 wrenches, 2 each 8mm and 10mm
- Pressure roller adjustment tool set

63D1. Preparation.

a. Disconnect skew control motor from linkage arm. Press down clip "C" of pivot "P" and pull out clip "C" to the right; pull pivot "P" off ball of skew motor (refer to Figure 2-154).

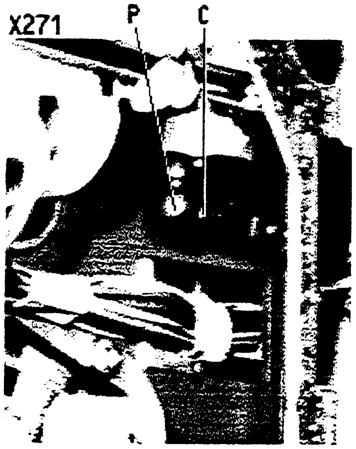


Figure 2-154. Pressure Roller Pressure (1)

b. Remove the pressure roller motor (refer to Routine 63B1).

Note

- When inserting the pressure roller adjustment tool "G" into the fusing station on the operator panel side, bushing "B" must be inserted into the shaft end (refer to Figure 2-155).

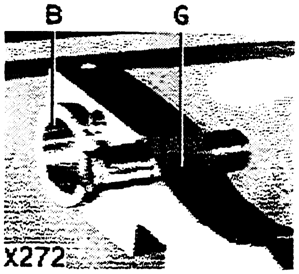


Figure 2-155. Pressure Roller Pressure (2)

- When inserting the pressure roller adjustment tool "G" into the fusing station on the drive side, bushing "B" must be removed from the shaft end.
- During the adjustment, the pressure roller adjustment tool is positioned on the pressure roller mounting posts (refer to Figure 2-156).

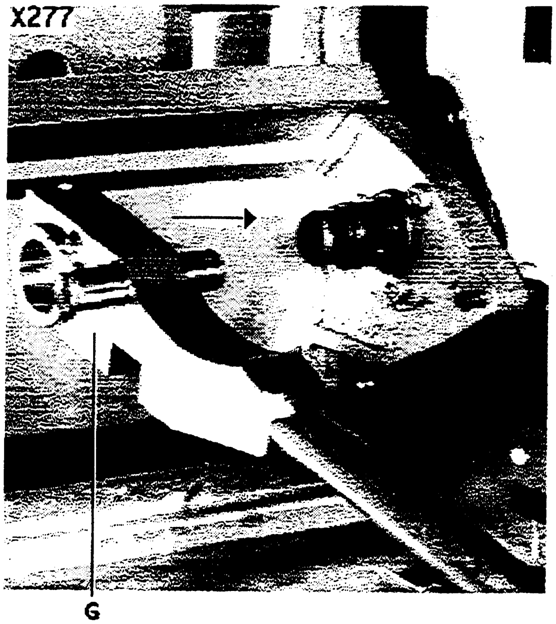


Figure 2-156. Pressure Roller Pressure (3)

- The second grove from the weight end of the tool is considered the "zero" position.

63D2. Pressure Roller Pressure Adjustment.

a. Insert 4 sheets of 18 in wide, 20 lb (457 mm, 70 g/m^2) paper having a thickness of 0.016 in (0.4 mm) between the pressure roller and the fuser roller.

b. Swivel on the pressure roller by turning disk "T" (refer to Figure 2-157) counter-clockwise using the swivel-on handle. Position the magnet of the timing disk between the center two hall effect generators.

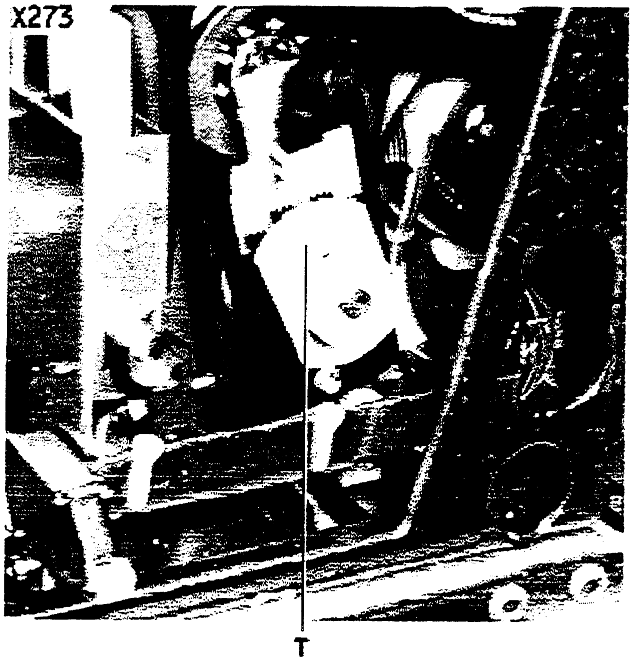


Figure 2-157. Pressure Roller Pressure (4)

c. Position the square balance arm in the center of the balance arm duct (refer to Figure 2-158).

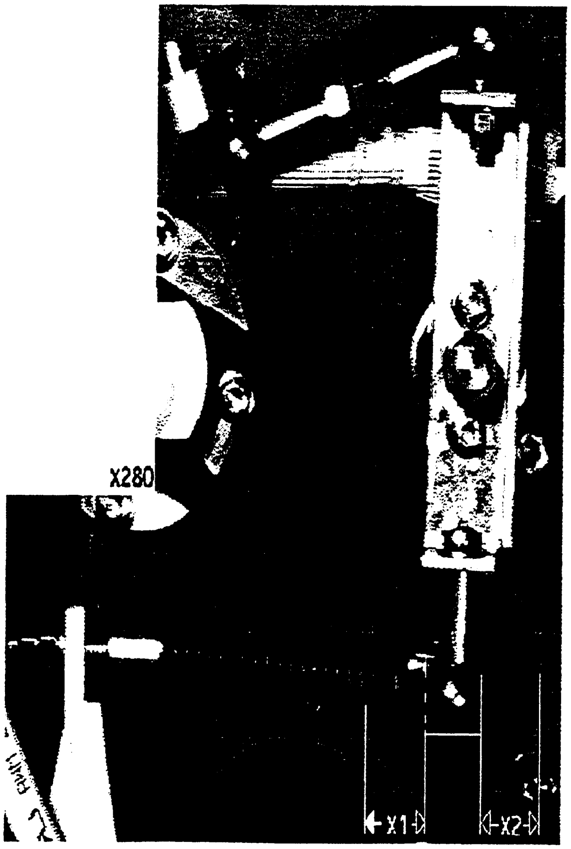


Figure 2-158. Pressure Roller Pressure (5)

- Measurement “X2” (refer to Figure 2-158) must be between 0.559 and 0.583 in (14.2 and 14.8 mm); check position with go/no-go gauge.

  To center the balance arm in the balance arm duct:

  - If measurement “X2” is greater than “X1”, tension balance arm spring on drive side until “X1” = “X2”.
  - If measurement “X2” is smaller than “X1”, tension balance arm spring on operator panel side until “X1” = “X2”.

d. Turn stop screws “S1” on operator panel side and “S2” on drive side using 8 mm wrench, so that there is a clearance of 0.047 +/- 0.002 in (1.2 +/- 0.05 mm) between cam shaft rocker and stop screws “S1” and “S2” (refer to Figure 2-159 and Figure 2-160).

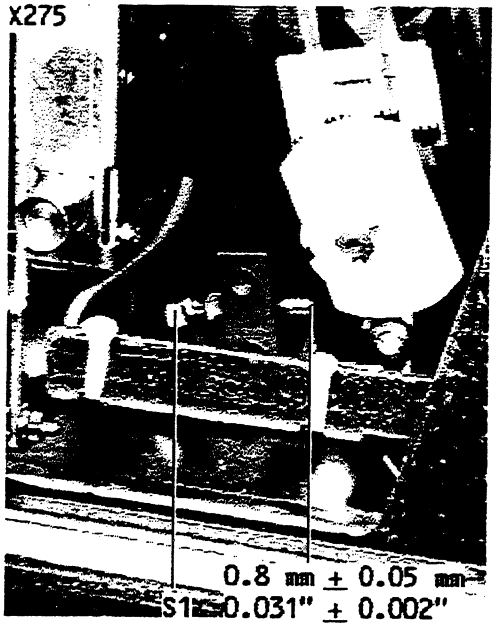


Figure 2-159. Pressure Roller Pressure (6)

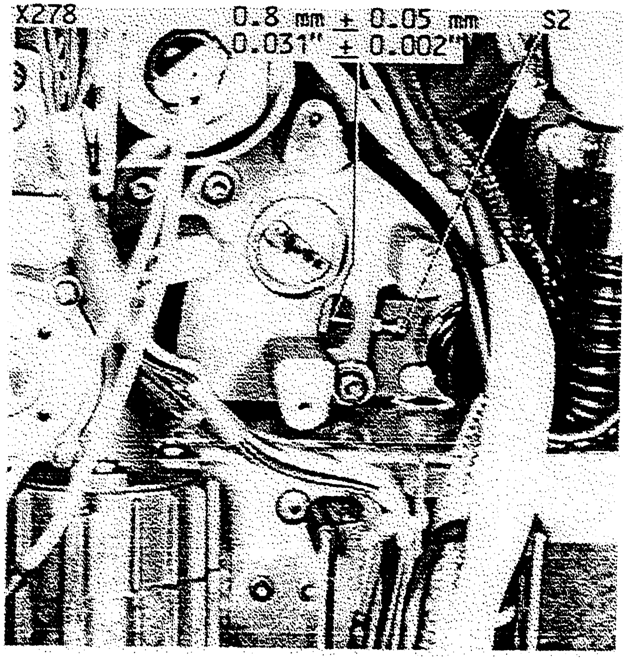


Figure 2-160. Pressure Roller Pressure (7)

e. Lock stop screws "S1" and "S2" (refer to Figure 2-159 and Figure 2-160).

f. Swivel off the pressure roller and remove the paper.

g. Remove the fuser roller and the pressure roller (Routines 62B1 and 63A1).

h. Using the swivel-on handle, swivel-on the pressure roller by turning disk "T" counter-clockwise until the magnet of the timing disk is between the center two hall effect generators (refer to Figure 2-157).

i. Insert the pressure roller adjustment tool on the drive side after removing bushing "B" (refer to Figure 2-155). Move the weight from the zero position towards the fuser station by 5 notches.

j. Apply pressure to the top of the weight and insert a 0.047 in (1.2 mm) feeler gauge between the cam shaft rocker on the drive side and the stop screw "S2" (refer to Figure 2-158). Relieve and remove the pressure roller adjustment tool.

k. Insert bushing "B" into the pressure roller adjustment tool. Insert the pressure roller adjustment tool on the operator panel side and move the weight into the zero position.

Note

During the following adjustment the square balance arm must remain centrally positioned in the balance arm duct (refer to Figure 2-158).

Measurement "X2" (refer to Figure 2-158) must be between 0.559 and 0.583 in (14.2 and 14.8 mm); check position with go/nogo gauge.

- Measure the clearance between the cam shaft and rocker and stop screw "S1" on the operator side (refer to Figure 2-159). If clearance is greater than 0.047 in (1.2 mm):
  - ☐ Tension the balance arm springs on the operator panel side and the drive side evenly using a 10 mm wrench.

- ☐ If clearance is less than 0.047 in (1.2 mm), relieve tension on the balance arm springs on the operator panel side and the drive side evenly using a 10mm wrench.

63D3. Pressure Roller Pressure Adjustment Check.

a. Move the weight of the pressure roller adjustment tool from the zero position towards the fuser station.

b. Apply pressure to the top of the weight and insert a 0.047 in (1.2 mm) feeler gauge "F" between the cam shaft rocker on the operator panel side and the stop screw "S1" (refer to Figure 2-159).

c. Relieve and remove the pressure roller adjustment tool.

d. Insert the pressure roller adjustment tool on the drive side. Apply pressure to the top of the weight and remove the 0.047 in (1.2 mm) feeler gauge.

e. Move the weight on the pressure roller adjustment tool until there is a clearance of 0.047 in (1.2 mm) between the cam shaft rocker and stop screw "S2" (refer to Figure 2-158).

f. The maximum allowable tolerance on both sides is 1 notch from the zero position. Repeat Routines 63D2 and 63D3 if necessary.

g. Do Routines 52B1, 67A2, and 67D1 in sequence.

Paper Input Saddle

Routine 64

64A. Paper Input Saddle Assembly

64A1. Parallelism Check. Estimated time to complete this procedure: 30 minutes.

a. Power OFF the printer and allow it to cool

b. Open the cleaning felt and suction assemblies.

c. Insert a new fuser roller.

d. Move paper input saddle into swiveled on position.

e. Measure the parallelism between fuser roller and paper input saddle with a feeler gauge (refer to Figure 2-161). Clearance should be approximately 1.8 mm to 2.8 mm (0.07 inch to 0.11 inch), and must not deviate more than 0.3 mm (0.012 inch) over whole length.

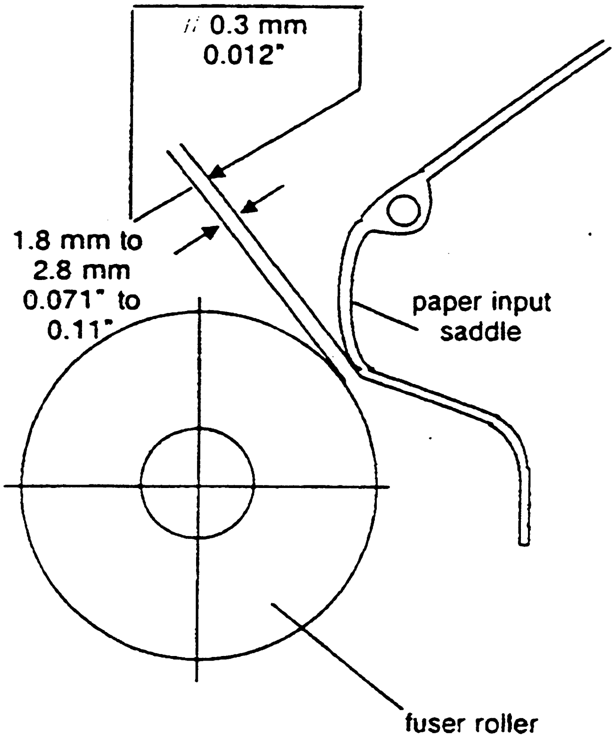


Figure 2-161. Paper Input Saddle Removal, Replacement, and Adjustment (1)

f. If the parallelism deviates more than 0.3 mm (0.012 inch), replace the paper input saddle (refer to Routine 64A2).

64A2. Paper Input Saddle Removal and Replacement.

Note This routine requires precision adjustments by factory personnel. Please contact your local Response Center product support before proceeding.

Estimated time to complete this procedure: 45 minutes.

a. Remove the heating element (refer to Routine 62A1).

b. Remove the fuser roller (refer to Routine 62B1).

c. Remove the pressure roller (refer to Routine 63A1).

d. Disconnect both springs (on left and right sides of paper input saddle) by using a spring-hook.

e. Remove the Tx20 screw that attaches the ground cable, and remove the cable.

f. Remove the 2-Tx20 screws "1" and bushing "B" at operator panel side (refer to Figure 2-162).

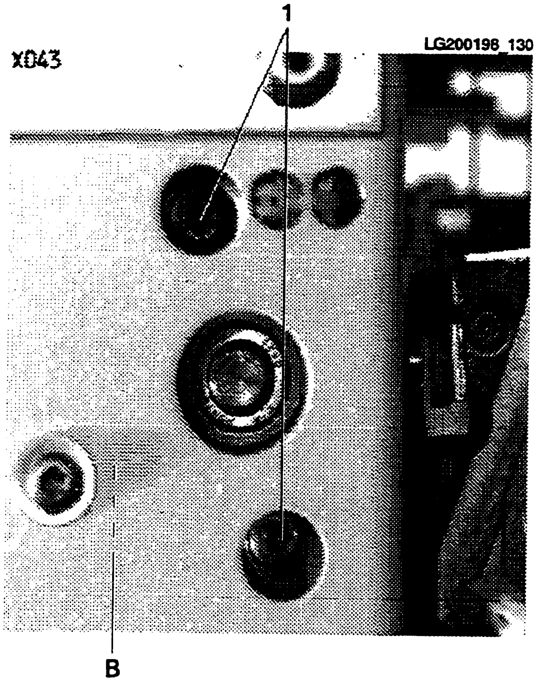


Figure 2-162. Paper Input Saddle Removal, Replacement, and Adjustment (2)

g. Remove the Tx30 screw “2” at drive side (refer to Figure 2-163).

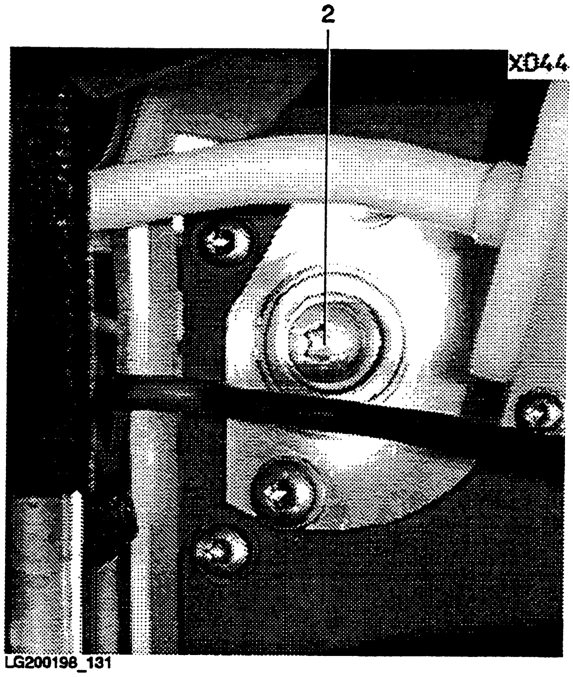


Figure 2-163. Paper Input Saddle Removal, Replacement, and Adjustment (3)

h. Lift paper input saddle and push it towards the front of the printer as far as it will go.

i. Remove the 12 mm hex pin "H" (refer to Figure 2-164).

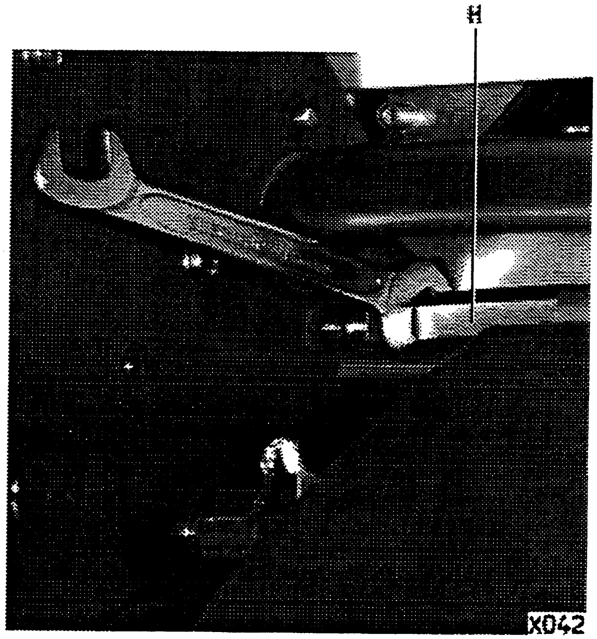


Figure 2-164. Paper Input Saddle Removal, Replacement, and Adjustment (4)

j. Remove the paper input saddle.

k. Install the replacement paper input saddle in reverse removal order. Be sure that the saddle shaft goes through the bushing on the operator panel side.

l. Check parallelism of paper input saddle to fuser roller (refer to Routine 64A1).

m. Check paper path static adjustment (refer to Routine 52B1).

64B. Fixsaddle Stepper Motor

64B1. Fixsaddle Stepper Motor Removal and Replacement. Estimated time to complete this procedure: 1 hour.

a. Power OFF the printer at the operator panel, and open the right door on the drive side.

b. Remove the Tx25 screw that attaches the cable duct cover, and remove the cover.

c. Remove the tie-wraps that secure the cables together in the cable duct, and disconnect plug X186 from cable holding plate "P" (refer to Figure 2-165).

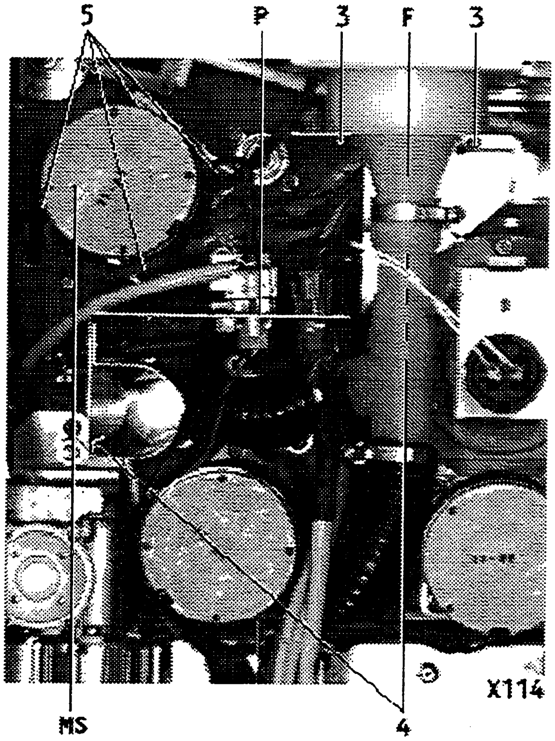


Figure 2-165. Stepper Motor Removal and Replacement

d. Withdraw tubes from fan assembly "F" (refer to Figure 2-165).

e. Remove the 2 screws "3" and the clamps that attach the fan assembly, and remove the fan (refer to Figure 2-165).

f. Remove the 2-Tx25 screws "4" and move cable guide plate "P" towards the front side (refer to Figure 2-165).

g. Remove the 4-Tx25 screws "5" and square nuts that attach stepper motor "MS", and remove the motor (refer to Figure 2-165).

h. Install the replacement stepper motor. Be sure to thread the drive belt around the motor pulley, then tension it by moving the motor to the left. Secure the motor by tightening 4 screws "5".

i. Continue the replacement procedure in reverse removal order.

64C. FIXSADDLE Sensor (FPO** PCA)

64C1. FIXSADDLE Sensor Removal and Replacement. Estimated time to complete this procedure: 10 minutes.

This sensor regulates the swivel ON/swivel OFF position of the paper input saddle.

a. Power OFF the printer at the operator panel.

b. Disconnect plug X31C (refer to Figure 2-166).

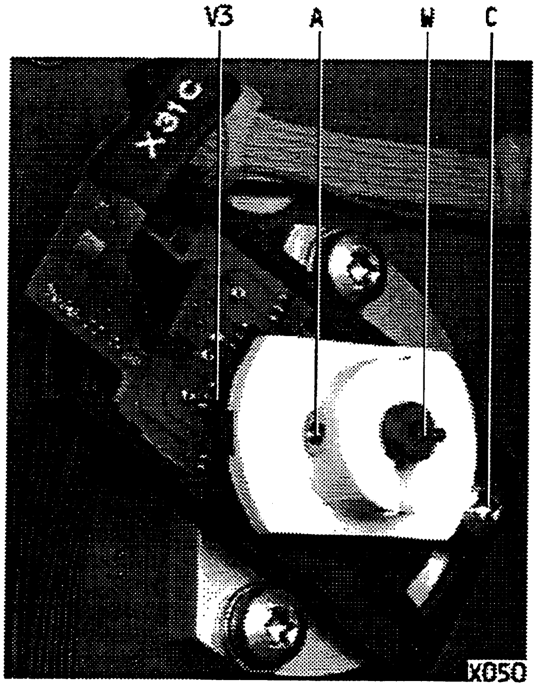


Figure 2-166. FIXSADDLE Sensor Removal, Replacement, and Adjustment (1)

c. Press holding brackets that attach the PCA, and remove the PCA.

d. Install a replacement FPO** PCA in reverse removal order.

64C2. FIXSADDLE Sensor Adjustments. Estimated time to complete this procedure: 30 minutes.

a. Power OFF the printer at the operator panel.

b. Loosen the Tx6 setscrew “A” (refer to Figure 2-166).

c. Move the magnet holder on shaft “W” until the clearance between the magnet and the hall effect sensor is 1 mm +/- 0.8 mm (0.039 inch +/- 0.031 inch) (refer to Figure 2-166).

d. Tighten setscrew “A”.

e. Rotate the magnet holder clockwise by hand until it stops. This should be the resting position of the saddle when swiveled off.

f. Loosen the Tx20 screw “C” attaching the FPO** PCA mounting bracket. Rotate the mounting bracket until the sensors on the PCA are in the correct position to the magnet (refer to Figure 2-167).

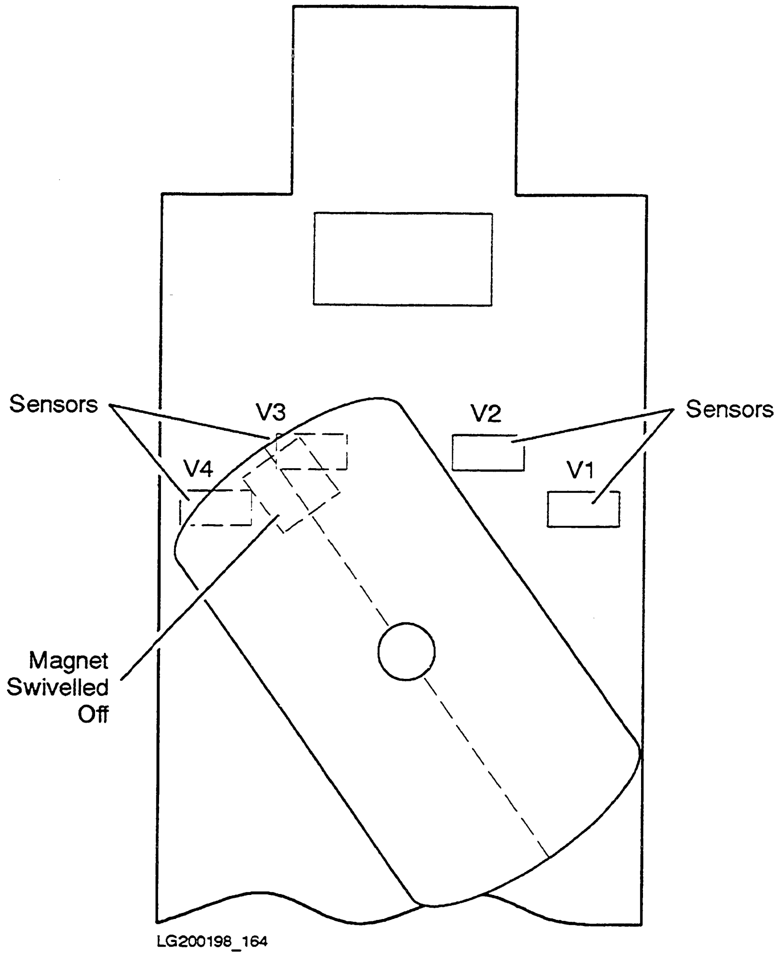

Sensors
V3
V2
Sensors
V4
V1
Magnet
Swivelled
Off
LG200198_164

Figure 2-167. FIXSADDLE Sensor Removal, Replacement, and Adjustment (3)

g. Tighten screw "C" and verify the position again.

Fuser Oiling System

Routine 65

65A. Oiling Saddle

65A1. Oiling Saddle Adjustment.

Note This routine requires precision adjustments by factory personnel. Please contact your local Response Center product support before proceeding.

a. Power OFF the printer and allow it to cool.

b. Open covers and door to access the fuser station.

c. Remove the cleaning felt.

d. Close oiling station and loosen the 8-Tx20 screws "A" on mounting brackets "B" (refer to Figure 2-168).

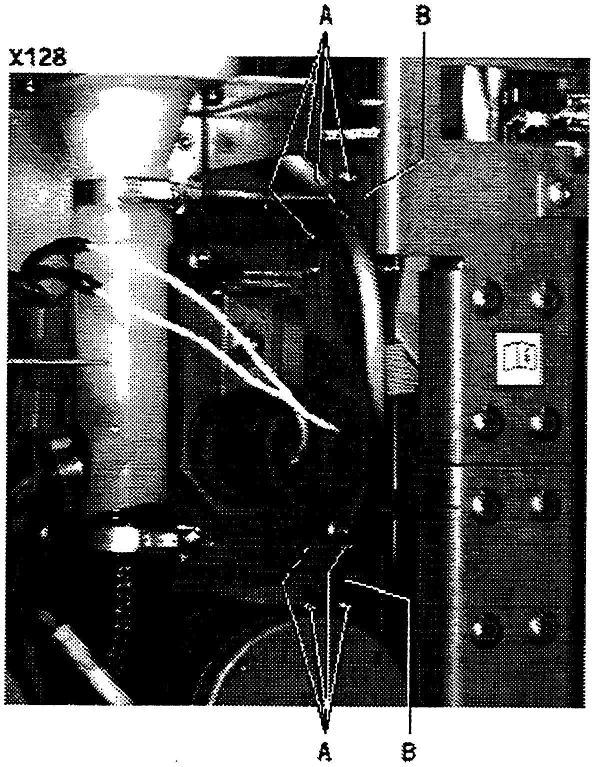


Figure 2-168. Fuser Oiling Saddle Adjustment (1)

e. Loosen the 3-Tx20 screws "C" on mounting block "D" (refer to Figure 2-169).

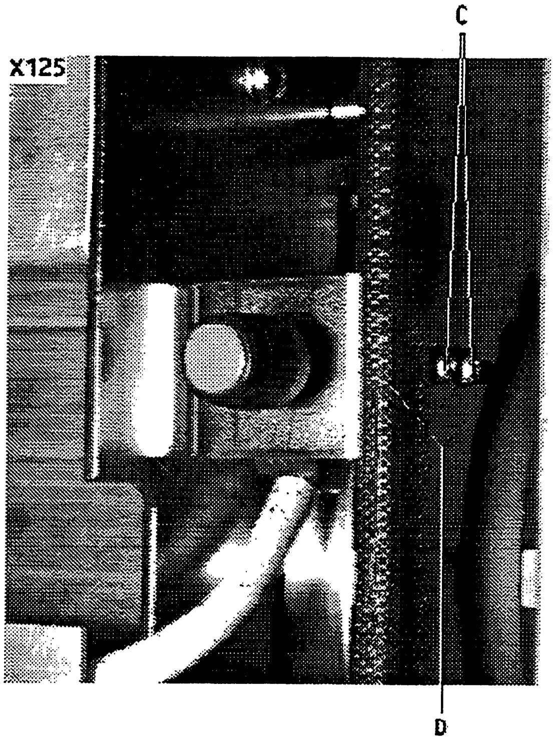


Figure 2-169. Fuser Oiling Saddle Adjustment (2)

f. Loosen the 2-Tx25 screws “E” on mounting bracket “F” (refer to Figure 2-170).

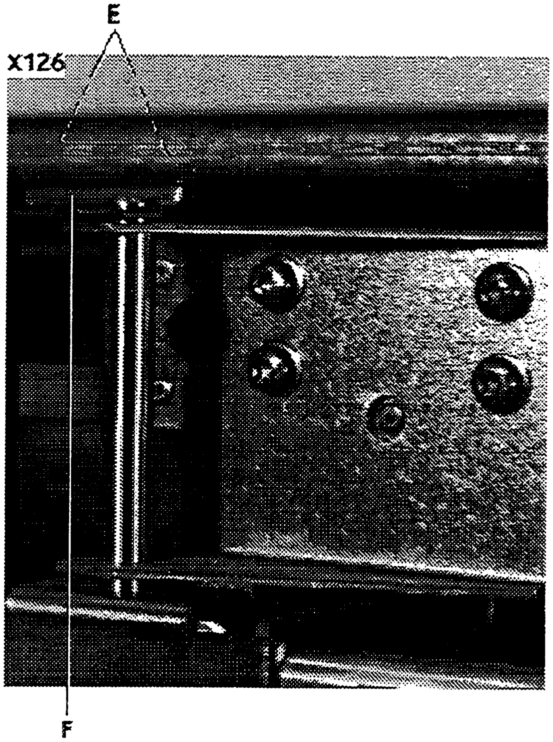


Figure 2-170. Fuser Oiling Saddle Adjustment (3)

g. Insert 5 punch cards (approximately 0.9 mm (0.035 inch) in thickness on the left and right sides between the saddle bars and fuser roller (refer to Figure 2-171).

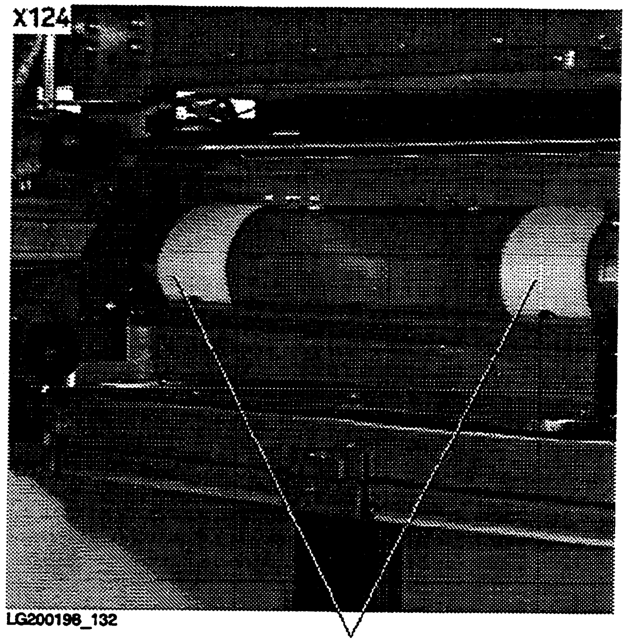


Figure 2-171. Fuser Oiling Saddle Adjustment (4)

h. Lock the saddle bars in place using 4 adjustment blocks "H" (HP part number 01622609-SNI) (refer to Figure 2-172).

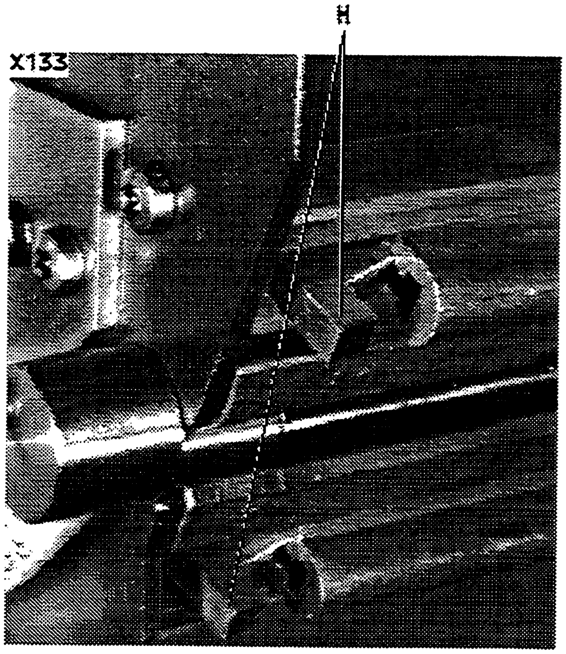


Figure 2-172. Fuser Oiling Saddle Adjustment (5)

i. Close oiling station and press onto fuser roller.

j. Tighten screws "A" (refer to Figure 2-168), "C" (refer to Figure 2-169), and "E" (refer to Figure 2-170).

k. Check the distance for a clearance of 0.8 mm +/- 0.3 mm (0.031 inch +/- 0.012 inch).

l. Remove supplement tools "H" (refer to Figure 2-172). Continue in reverse order.

65B. Dosage Tube Motor

65B1. Dosage Tube Motor Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Power OFF the printer at the operator panel.

b. Open the cover on the oiling system, and remove the thermal cover.

c. Disconnect plug X263, and remove the 2-Tx10 screws "1" that attach the gear motor. Remove the motor (refer to Figure 2-173).

Note On some printers, connector X263 is located in cable holding plate "P" (refer to Figure 2-165).

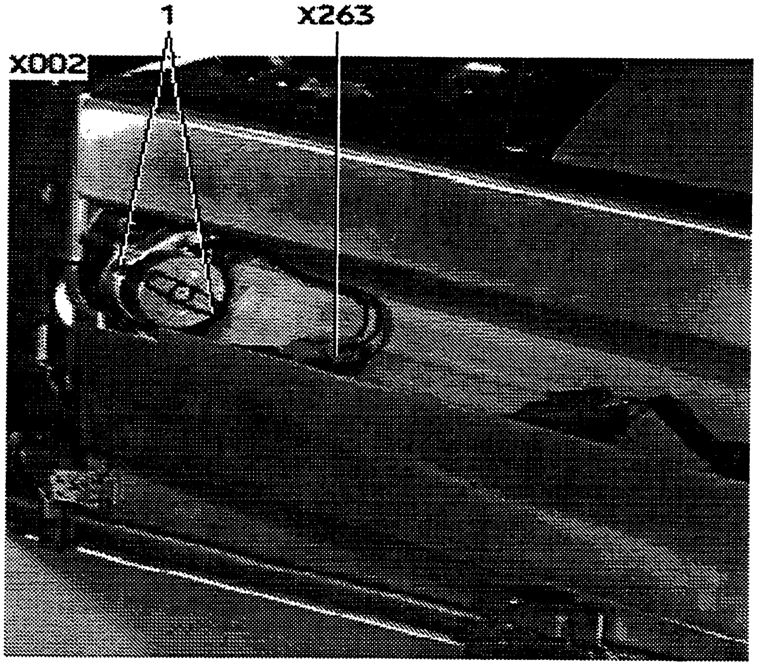


Figure 2-173. Dosage Tube Motor Removal and Replacement

d. Loosen the 1.5 mm Allen setscrew "G" that attaches pinion "V" to the motor shaft, and remove the pinion (refer to Figure 2-174).

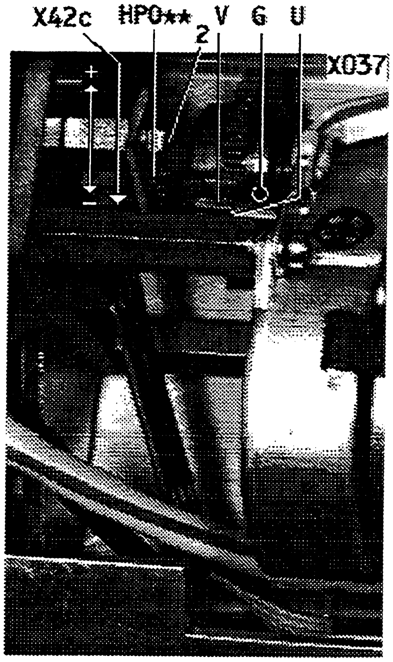


Figure 2-174. Dosage Tube Sensor Removal and Replacement

e. Install pinion "V" on the shaft of the replacement motor, using a 0.3 mm (0.012 inch) feeler gauge to set the clearance between pinion hub "U" and the motor bushing (refer to Figure 2-174).

f. Tighten setscrew "G".

g. Complete the replacement procedure in reverse removal order.

h. Adjust oiling dosage (refer to Routine 65E1).

65C. Dosage Tube Reference Sensor (HPO** PCA)

65C1. Dosage Tube Reference Sensor Removal and Replacement. Estimated time to complete this procedure: 15 minutes.

a. Power OFF the printer at the operator panel.

b. Open the cover on the oiling system, and remove the thermal cover.

c. Remove the 5.5 mm nut "2" that attaches the HPO** PCA, and remove the PCA (refer to Figure 2-174).

d. Disconnect plug X42c from the HPO** PCA.

e. Install the replacement HPO** PCA in reverse removal order.

f. Adjust oiling dosage (refer to Routine 65E1).

65D. Cleaning Blade

65D1. Cleaning Blade Removal and Replacement. Estimated time to complete this procedure: 10 minutes.

a. Open the cover on the oiling system.

b. Unlock and swivel out the oiling station.

c. Press the rapid lock and swing out the cleaning station.

d. Remove the 3 knurled screws "R" that attach the cleaning blade, and remove the blade (refer to Figure 2-175).

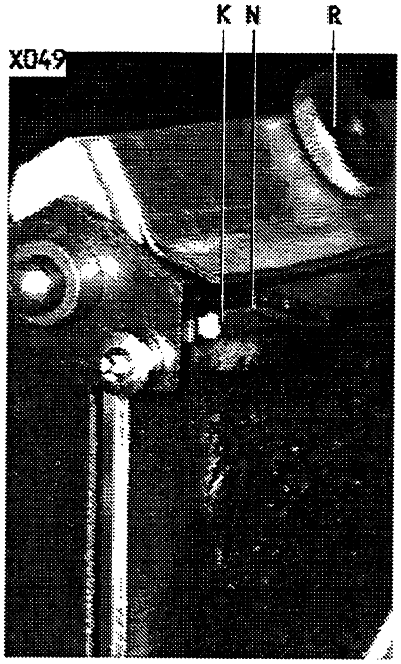


Figure 2-175. Cleaning Blade Removal and Replacement

e. The cleaning blade has 4 usable edges. Select an unused edge on the existing blade, or install a new replacement cleaning blade. When installing the cleaning blade, position groove "N" on edge "K" (refer to Figure 2-175).

f. Tighten knurled screws "R".

65D2. Cleaning Blade Adjustment. Estimated time to complete this procedure: 15 minutes.

a. Power OFF the printer at the operator panel.

b. Open the cover on the oiling system.

c. Unlock and swivel off oiling system.

d. Remove front fuser station cover.

e. Measure clearance "D" between the edge of the cleaning blade, and fuser roller "F" at front and rear of the printer. The measurement should not vary by more than 0.5 mm (0.020 inch) (refer to Figure 2-176).

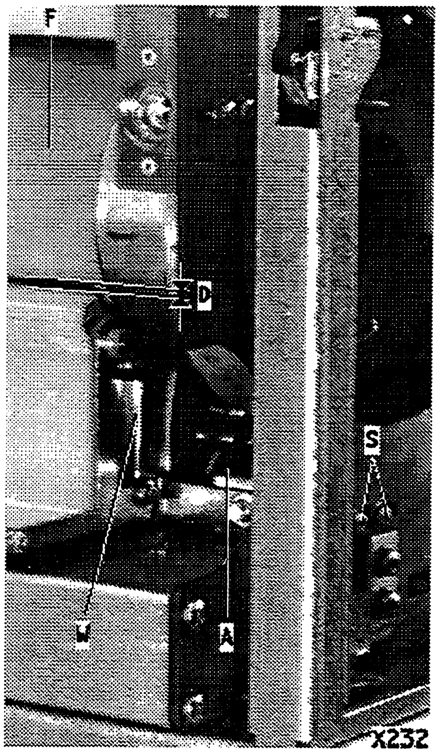


Figure 2-176. Cleaning Blade Adjustment

f. If adjustment is required, loosen 2-Tx20 screws "S" and adjust clearance "D" to tolerance.

Caution When adjusting the cleaning blade, do not allow the toner waste tray to contact the fuser roller (refer to Figure 2-176). Scratches to the surface of the fuser roller could result if this precaution is not taken.

65E. Fuser Oil Dosage Tube

65E1. Fuser Oil Dosage Tube Adjustment. Estimated time to complete this procedure: 45 minutes.

Note This procedure must be done after replacing the dosage tube motor, or the HPO** PCA.

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a. Adjust the tractor assemblies for minimum paper width.

b. Cycle power on printer to recalibrate oil dosage tube to new position.

c. Wait until the geared motor has finished turning (it will start to turn after the printer has completed its corotron cleaning routine and the front panel Sequence LED goes OFF).

d. Open and swing out the cleaning felt door; remove the thermal cover if it is still installed.

e. Remove the cleaning felt.

f. Remove the Tx20 screw "A" that attaches dosage tube "D" (refer to Figure 2-177). Pull the dosage tube out approximately 20 mm (0.8 inch) to disengage the gear at the other end from the idler gear (refer to Figure 2-178).

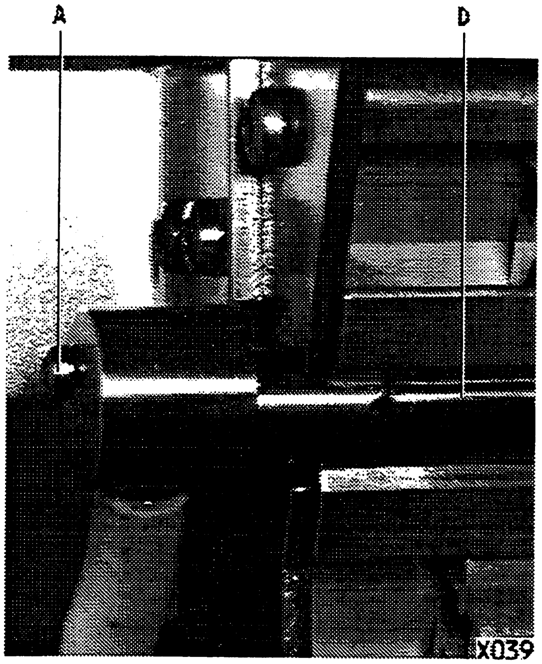


Figure 2-177. Oiling Dosage Adjustment (1)

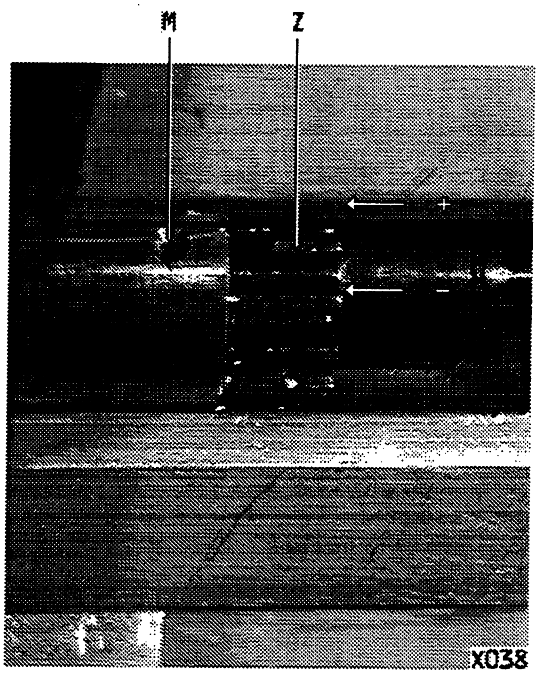


Figure 2-178. Oiling Dosage Adjustment (2)

g. Turn the gear on the dosage tube by hand, until the beveled tooth "Z" aligns with mark "M" (refer to Figure 2-178).

h. Cautiously push the dosage tube assembly back onto the idler gear, and secure with screw "A". If the teeth do not engage, turn the dosage gear to get a better mesh.

i. Cycle power on the printer again to cycle the oil dosage motor.

j. After the motor has stopped turning, check where the beveled tooth stopped. If it stopped at alignment mark "M", this procedure is complete; otherwise, proceed as follows:

- If the beveled edge is more than 2 teeth away from alignment mark "M", redo this procedure.

- If it stopped at the "+" position (refer to Figure 2-178), move the HPO** PCA towards you (refer to Figure 2-179).

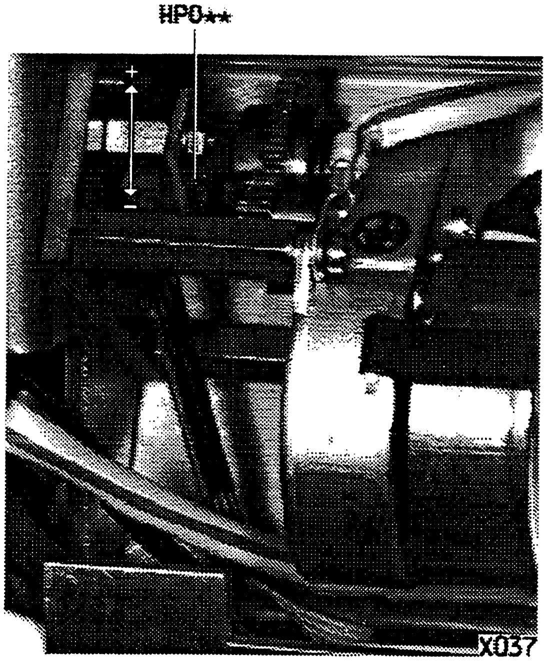


Figure 2-179. Oiling Dosage Adjustment (3)

- If it stopped at the "-" position (refer to Figure 2-178), move the HPO** PCA away from you (refer to Figure 2-179).

k. Close and lock the oiling system, and cycle the power again. Check where the gear stopped. Continue this adjustment until the beveled tooth stops at alignment mark "M".

65F Oil Pump

65F1. Oil Pump Removal and Replacement. Estimated time to complete this procedure: 15 minutes.

a. Power OFF the printer at the operator panel.

b. Open the rear fuser station door.

c. Loosen and push back hose clamps "H" (refer to Figure 2-180).

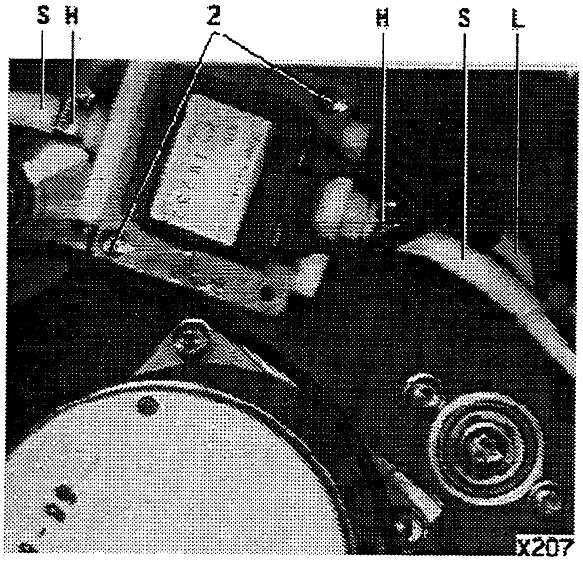


Figure 2-180. Oil Pump Removal and Replacement

Note Place paper towels (or something similar) under the oil pump to absorb oil from the pump.

---

d. Remove tubes "S" from the pump. Plug the tube ends to prevent spills.

e. Disconnect pipe "L" from the oil pump.

f. Remove the 2-Tx20 screws "2" that attach the oil pump, and remove the pump.

g. Fill the replacement pump with fuser oil, using an oiler to do so.

h. Install the replacement oil pump in reverse removal order.

Roller Saddle

Routine 66

66A. Roller Saddle Assembly

66A1. Roller Saddle Assembly Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Power OFF the printer at the operator panel.

b. Unlatch the cover under the fuser station and swivel it down.

c. Remove the 2-Tx20 screws "1" that attach bracket "W", and remove the bracket (refer to Figure 2-181).

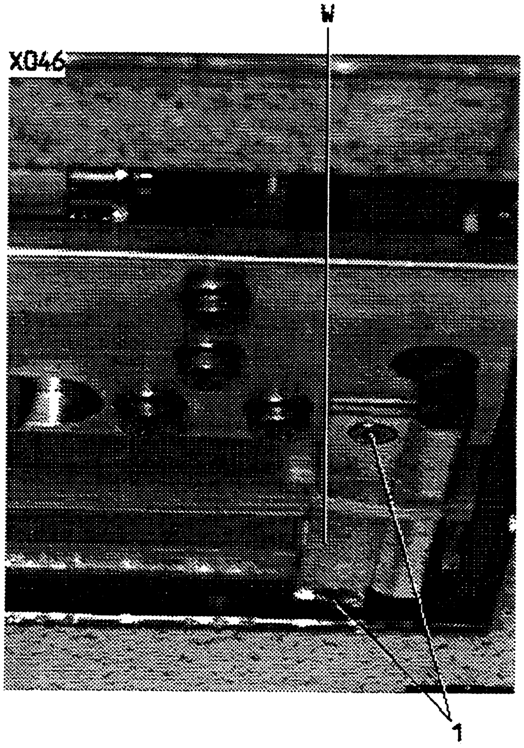


Figure 2-181. Roller Saddle Removal and Replacement (1)

d. Disconnect plug X220 from the FIX** PCA.

e. Remove 2 slot screws "2"; 1 at operator panel side (refer to Figure 2-182) and 1 at drive side (refer to Figure 2-183).

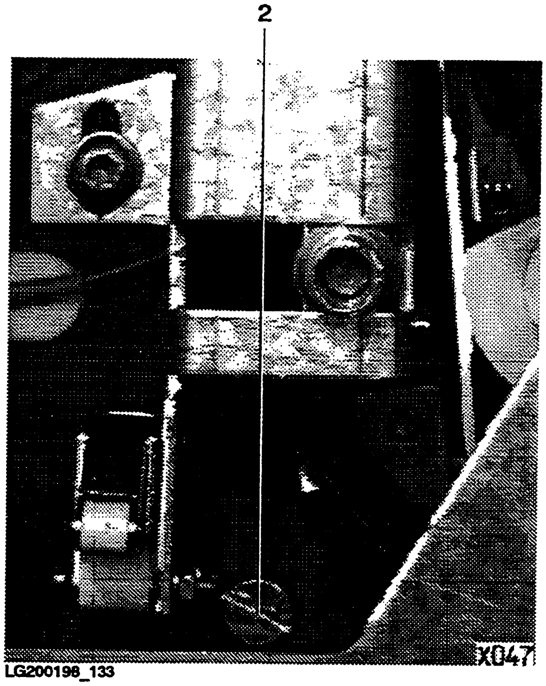

2
X047
LG200198_133

Figure 2-182. Roller Saddle Removal and Replacement (2)

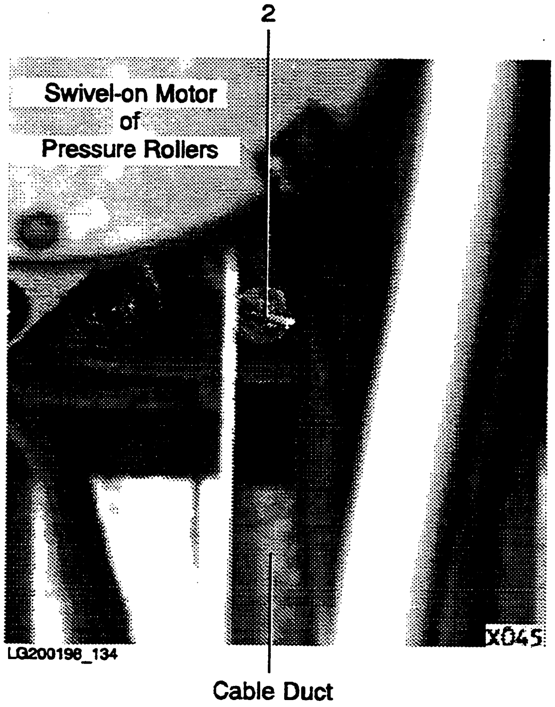

2
Swivel-on Motor
of
Pressure Rollers
X045
LG200198_134
Cable Duct

Figure 2-183. Roller Saddle Removal and Replacement (3)

f. Unlock and swivel off roller saddle to remove it from below.

g. Install the replacement roller saddle in reverse removal order.

66B. FIXJAM Sensor (FIX** PCA)

66B1. FIXJAM Sensor Removal, Replacement, and Adjustment. Estimated time to complete this procedure: 30 minutes.

a. Remove the roller saddle (refer to Routine 66A1).

b. Remove the Tx10 screw and 5.5 mm nut that attaches the FIX** PCA, and remove the PCA.

c. Install the replacement PCA in reverse removal order.

d. Check for a clearance of 1 mm +/- 0.6 mm (0.039 inch +/- 0.024 inch) between timing disk "S" and the FIXJAM sensor (refer to Figure 2-184). If adjustment is required, insert or remove washers to get the correct clearance.

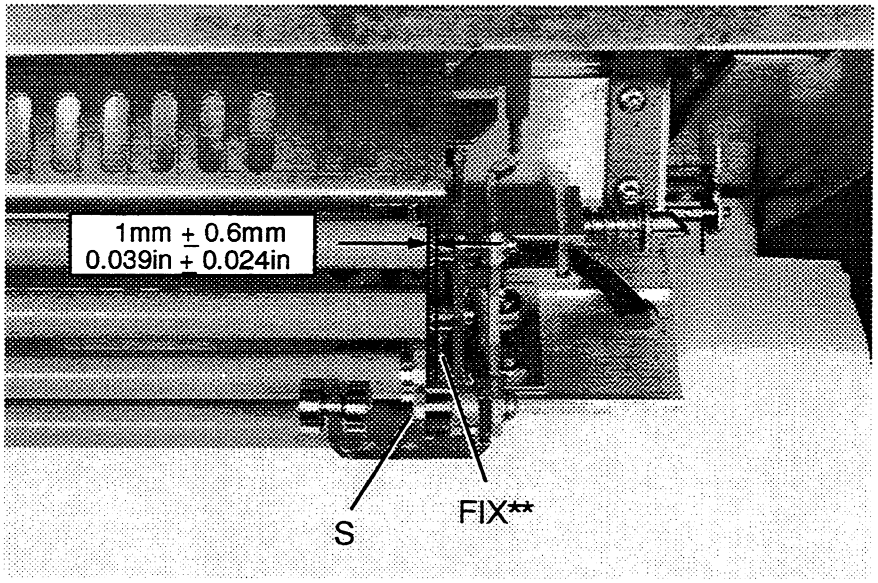


Figure 2-184. FIXJAM Sensor Removal, Replacement, and Adjustment

66C. Roller Saddle

66C1. Roller Saddle Removal and Replacement. Estimated time to complete this procedure: 15 minutes.

a. Unlatch the cover panel under the fuser station and swivel it down.

b. Unlatch the roller saddle and swivel it down.

c. Remove the C-clips "U" from roller axles (refer to Figure 2-185).

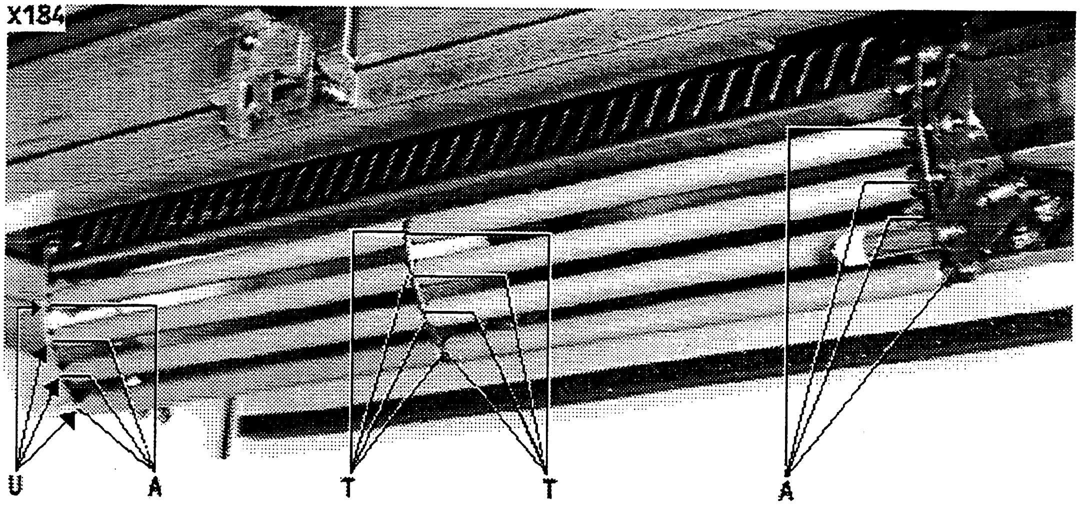


Figure 2-185. Rollers Removal and Replacement

d. Remove rollers by pulling out axles. Take care not to lose washers "T" and spacers "A" when removing the axles.

e. Reinstall or replace in reverse removal order.

Edge Monitoring

Routine 67

67A. Paper Skew Sensor

67A1. Paper Skew Sensor Remove and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Power OFF the printer at the operator panel.

b. Measure and note clearance "X" (refer to Figure 2-186).

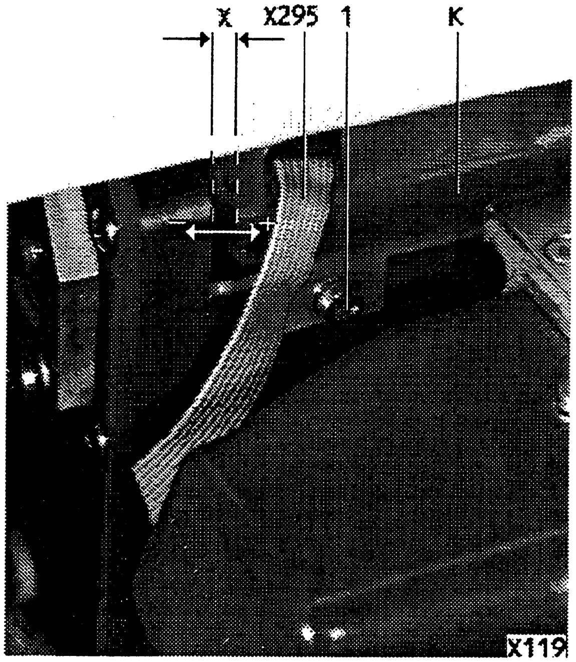


Figure 2-186. Edge Monitoring Sensor Removal, Replacement, and Adjustment (1)

c. Disconnect plug X295.

d. Remove the Tx20 screw that attaches the plastic cover for the magnetic valve, and remove the cover.

e. Remove the Tx15 screw "1" that attaches sensor "K", and remove the sensor (refer to Figure 2-186).

f. Install a replacement sensor in reverse removal order, and adjust to clearance "X" (refer to Figure 2-186).

g. Do the dynamic edge monitoring adjustment (refer to Routine 67A2).

67A2. Paper Skew Sensor Adjustment. Estimated time to complete this procedure: 1 hour.

Tools required:

- Approximately 24 lb. (10.9 kg), 18 in (45.7 cm) wide white paper
- RATEC temperature measurement tool, HP part number 0853-0091

- Feeler gauge

a. Check and adjust, if necessary:
   - Fuser roller temperature (refer to Routine 62D1)
   - Horizontal parallelism of tractor pins (refer to Routine 52C2)
   - Verify printer is level
   - Verify fuser roller is not damaged and operating smoothly

b. Verify fusing temperature (Menu 1.10) is set to *NORMAL.*

c. Remove hose "S4" for paper cooling (located under the toner supply assembly) (refer to Figure 2-187).

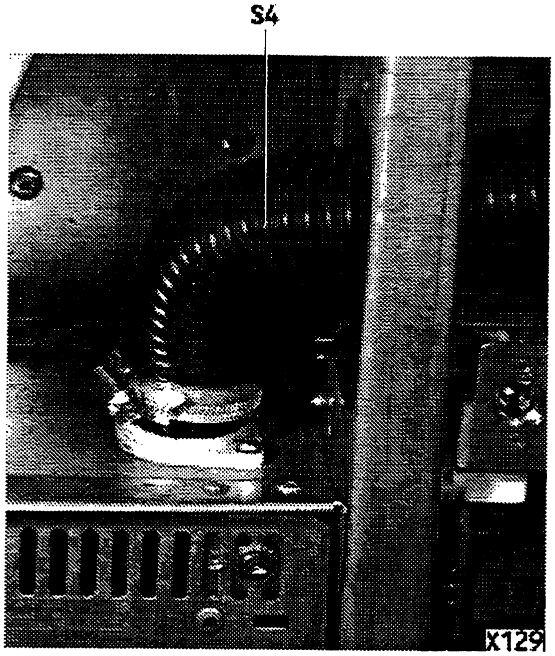


Figure 2-187. Edge Monitoring Sensor Removal, Replacement, and Adjustment (2)

d. Set decurler option (if installed) to 0.

e. Start printing continuous submodule print (test 118=02). It is important to allow the fuser to stabilize by printing continuously for 5 minutes.

f. After 5 minutes and while the printer is running, hold the RATEK temperature gun 1 inch (25 mm) away from the paper. Point the gun at the paper. Take measurements approximately 1 inch (25 mm) in from the left and right edges of the paper, and as close to the fuser station as possible (refer to Figure 2-188).

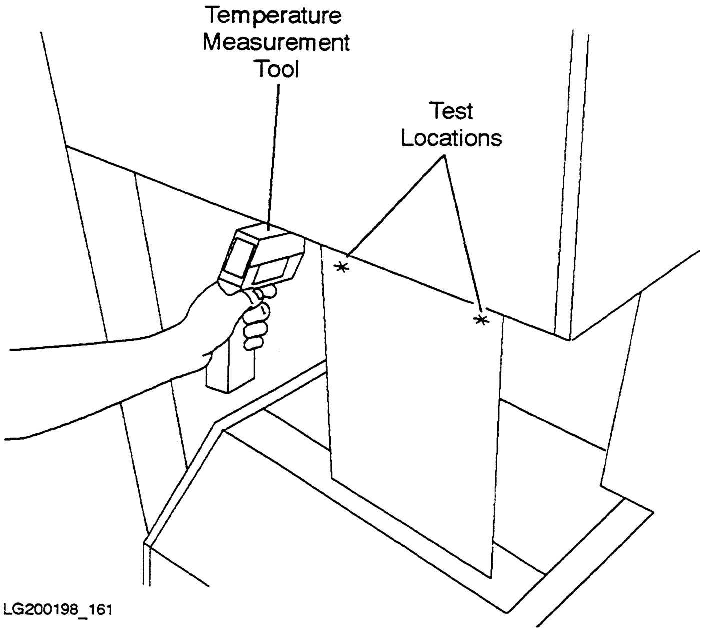


Figure 2-188. Edge Monitoring Sensor Removal, Replacement, and Adjustment (3)

g. Take 5 measurements, each at 1/2 minute intervals and record the results.

Note Take the measurements on the white (unprinted) areas of the paper only. The dark (printed) areas will indicate higher temperatures, and measurements taken on these areas will alter the results.

---

h. Calculate the average value of the 5 measurements for both the left and right readings.

i. Rotate the input paper supply 180 degrees. Enable continuous printing again.

j. Again take 5 temperature measurements, each at 1/2 minute intervals and record the results.

k. Calculate the average values for both the left and right sides.

The difference between the 2 sets of measurements for the left side must not differ more than 10° C. The same is true for the 2 readings on the right side. If the difference is greater than 10° C for either of the 2 sides, it is most likely the paper supply is at fault and should be corrected before proceeding. If the difference is less than 10° C, continue this routine.

l. Using the last set of calculated temperatures, subtract the average of the left side from the average of the right side. The difference between the left and right averages should be less than 5° C (41° F). If less than 5° C, go to step "O".

m. Using a feeler gauge, adjust the paper skew sensor as follows (refer to Figure 2-186). If the difference between the results calculated is:

- Value is positive, move the sensor towards "+".
- Value is negative, move the sensor towards "-".
- Greater or equal to 20° C (68° F), move the sensor 0.020 inch (0.5 mm).
- Greater or equal to 15° C (59° F), move the sensor 0.012 inch (0.3 mm).

Note The paper will skew towards the greater pressure and/or temperature. Move the sensor towards the cooler paper edge (when facing output).

n. Repeat the measurements and adjust the skew sensor until the difference between the left and right edges is less the 5° C (41° F). The input paper supply does not need to be rotated anymore in this routine, unless a new supply of paper is needed.

o. Reinstall hose "S4".

67B. Deskew Mechanism Sensor KRL** PCA

67B1. Deskew Mechanism Sensor Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Power OFF the printer at the operator panel.

b. Remove fuser station front cover.

c. Disconnect plugs X296, X297, and X11 (refer to Figure 2-189).

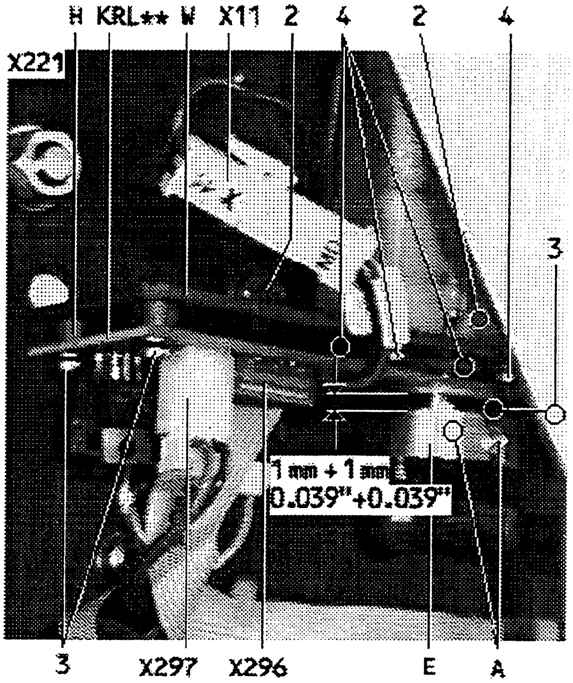

H
KRL**
W
X11
2
4
2
4
X221
3
1 mm + 1 mm
0.039"+0.039"
3
X297
X296
E
A

Figure 2-189. KRL PCA Removal, Replacement, and Adjustment (1)**

d. Unhook and remove safety pin “S” (refer to Figure 2-190) on the pushrod socket.

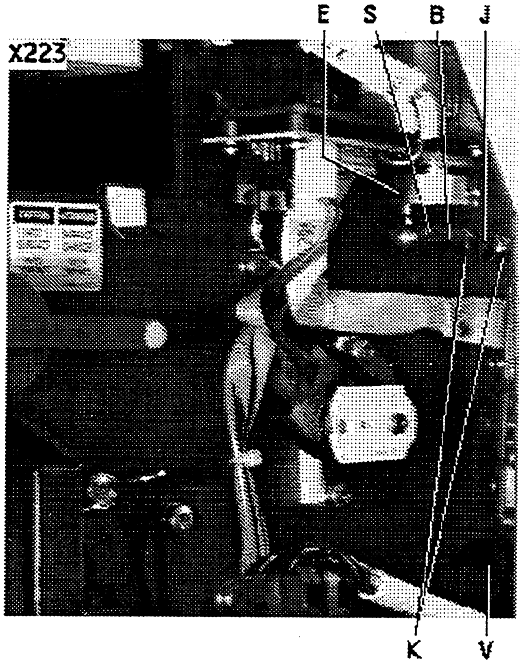


Figure 2-190. KRL** PCA Removal, Replacement, and Adjustment (2)

e. Pull pushrod from the ball joint.

f. Loosen the 2 locking screws “A”, and remove the adjusting eccentric “E” from the motor shaft (refer to Figure 2-189).

g. Remove the 2-Tx25 screws “2” that attach the edge monitoring assembly (refer to Figure 2-189).

h. Remove the 4-Tx10 screws “3” that attach the KRL** PCA, and remove the PCA. Take care not to lose spacers “H”.

i. Install a replacement KRL** PCA in reverse removal order.

67C. Deskew Mechanism Motor

67C1. Deskew Mechanism Removal and Replacement. Estimated time to complete this procedure: 45 minutes.

a. Do Routine 67B1.

b. Remove the 4-Tx10 screws “4” that attach the motor to bracket “W”, and remove the motor (refer to Figure 2-189).

c. Install a replacement motor in reverse removal order.

d. Adjust eccentric “E” until the clearance between the magnet and the hall sensors on the KRL** PCA is 1 mm + 1 mm (0.039 inch + 0.039 inch) (refer to Figure 2-189).

67D. Deskew Mechanism Pushrod

67D1. Deskew Mechanism Adjustment of Pushrod Length.

Note This routine requires precision adjustments by factory personnel. Please contact your local Response Center product support before proceeding.

Estimated time to complete this procedure: 30 minutes.

a. Check and adjust if necessary:
   - Fuser Roller Temperature (refer to Routine 67D1).
   - Horizontal Parallelism of Tractor Pins (refer to Routine 52C2).
   - Verify printer is level; Installation section.
   - Verify fuser roller is not damaged and is operating smoothly.

b. Power OFF the printer at the operator panel. Remove fuser station front cover.

c. Unhook and remove safety pin "S" (refer to Figure 2-190) on the pushrod socket.

d. Pull pushrod from the ball joint.

e. Defeat the cover interlock.

f. Power ON the printer. Observe that the eccentric moves back and forth and stops at its center.

g. When the sequence LED goes OFF, Power OFF the printer.

h. The pushrod must fit into the eccentric without moving balance bar "V"; otherwise, adjust the length as follows:
   - Loosen 8 mm lock nuts "K" and adjust the length with turnbuckle "J".
   - Tighten lock nuts "K" to secure the length adjustment.

i. Reconnect the pushrod to the balljoint on the eccentric, and insert the safety pin.

j. Reinstall the cover on the fuser station.

Stacker Top Assembly

Routine 71

71A. Stacker Top Assembly

71A1. Stacker Top Assembly Removal and Replacement.

Warning **The stacker top assembly weighs approximately 132 pounds (27.3 kg). To do this procedure safely and avoid injury, 2 people are required.**

a. Remove the stacker assembly cover.

b. Remove the static discharge station (refer to Routine 72D1).

c. From the inside, remove 4 screws “1” (refer to Figure 2-191). One screw is accessible through an access hole in the vertical wobbler plate. Remove the front lateral cover.

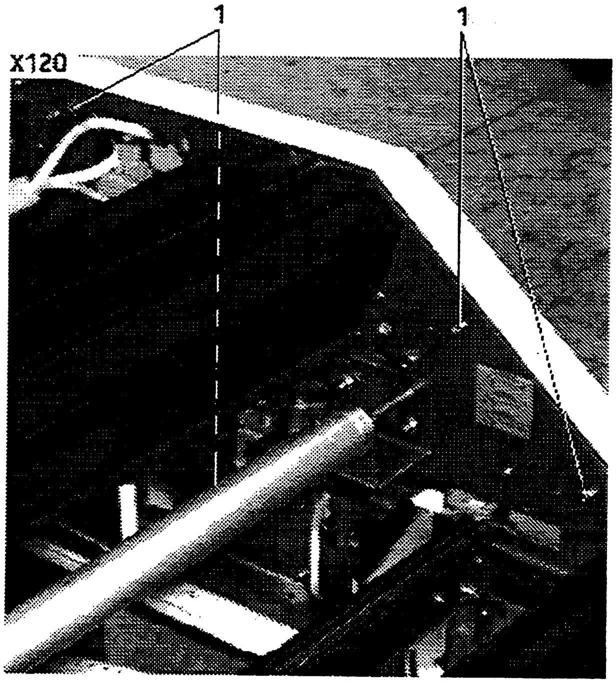


Figure 2-191. Stack Top Assembly Removal and Replacement (1)

d. Move the stacker top assembly upward until bracket "W" can be removed (refer to Figure 2-192).

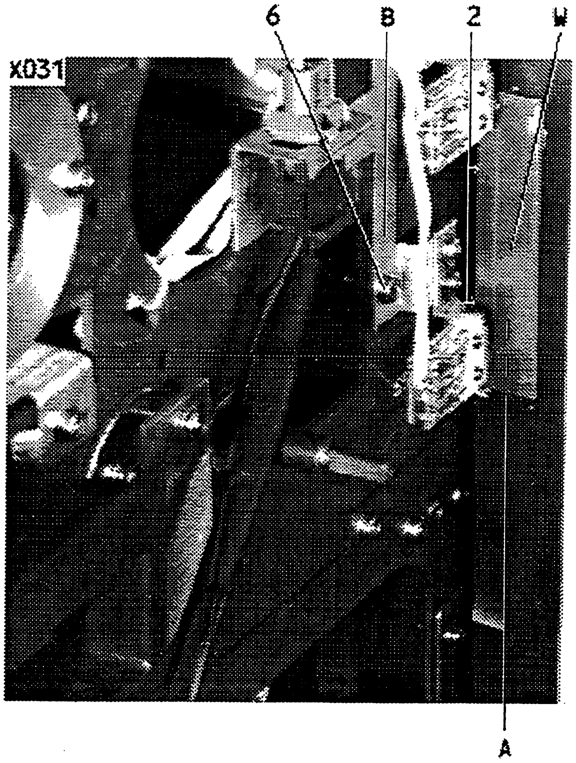


Figure 2-192. Stack Top Assembly Removal and Replacement (2)

e. Remove the 2-Tx10 screws "2" that attach cover bracket "W", and remove the bracket (refer to Figure 2-192). Remove corresponding left side bracket, if present, at this time.

f. Mark the position of bracket "B"; then, remove the 2-Tx20 screws that attach bracket "B" (along with switches S50, S51, and S53). Remove the bracket (refer to Figure 2-192).

g. Actuate the top two switches and tape them in the ON position, to prevent damage to the switches as they pass over the slot.

h. Move the stacker downward until the stacker top assembly rests on the stacker tray (also, refer to the Note preceding Routine 71B1). Power OFF the printer.

i. Tape the bottom switches to protect them during the removal process.

j. Secure the stacker chain under the drive roller with tie-wraps.

k. Remove the 2-Tx30 screws "3" to detach the stacker top assembly and chains (refer to Figure 2-193 and Figure 2-194).

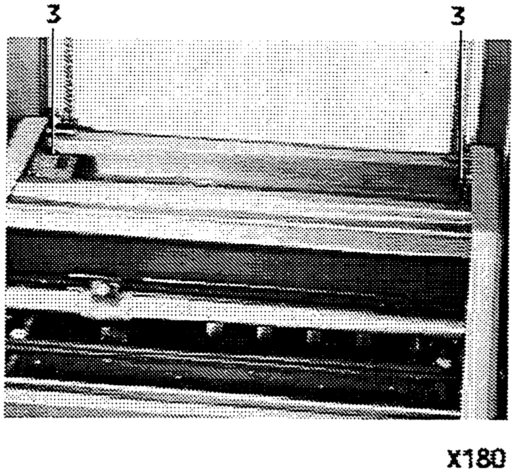


Figure 2-193. Stack Top Assembly Removal and Replacement (3)

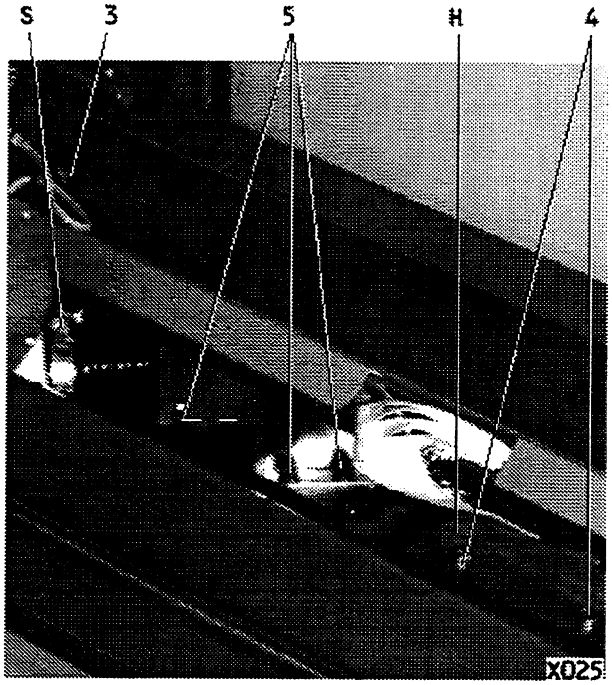


Figure 2-194. Stack Top Assembly Removal and Replacement (4)

l. Lift the stacker top assembly until lower guide rollers can be swiveled out of sparing "A" (at left and right side) of guide profile (refer to Figure 2-192 and Figure 2-195). Then, lower the top assembly until the upper guide rollers can also be removed (refer to Figure 2-195). Rest the unit on the stacker table, being careful not to bind the paper guides protruding from the bottom.

ROUTINE 71

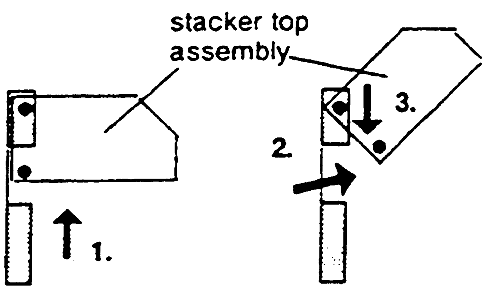


Figure 2-195. Stack Top Assembly Removal and Replacement (5)

m. Remove the 2-Tx20 screws "4" that attach bracket "H", and remove the bracket (refer to Figure 2-194).

n. Disconnect plugs X195, X197, and X181.

o. Remove the 3-Tx20 screws "5"; then, loosen hose clamp "S" and withdraw hose (refer to Figure 2-194).

p. Rest the stacker top assembly on its back (refer to Figure 2-196).

Caution Never rest the stacker top assembly on the safety sensors. The sensors could be easily damaged if this precaution is not taken.

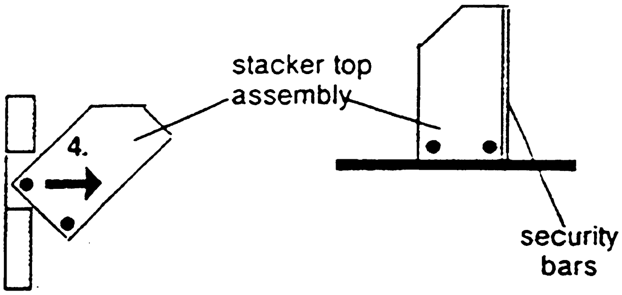


Figure 2-196. Stack Top Assembly Removal and Replacement (6)

q. Before reinstalling the stacker, install bracket "H", hose "S" (refer to Figure 2-194), and reconnect plugs X195, X197, and X181.

r. Complete the installation procedure in reverse removal order.

71B. Stacker Motor

71B1. Stacker Motor Removal and Replacement. Estimated time to complete this procedure: 1-1/2 hours.

Note There is a one way clutch inside of bushing "B" (refer to Figure 2-197). If the motor is defective, the stacker top can only be moved upwards easily. Place a stack of paper underneath the stacker top assembly to support it while you remove the tension on the lifter chains. The stacker top can then be moved downwards by manually turning the motor to lower it onto the stack of paper put under it for support. Once the tension on the chains is released, you can remove the screws to detach the stacker top assembly from the chains. If the motor refuses to turn, do the procedure, then proceed at Step g.

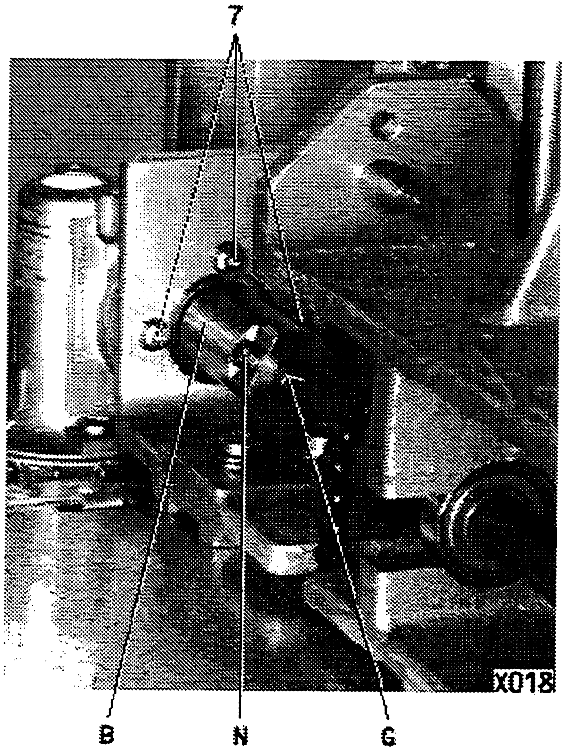


Figure 2-197. Stacker Motor Removal and Replacement (1)

THIS PART OF THE PROCEDURE IS FOR A DEFECTIVE MOTOR.

a. Power OFF the printer.

b. Open the fusing station rear door. Remove the cover over the cable duct.

c. Remove the cable duct. It is attached by a Tx20 screw and a hexagonal standoff. Remove the standoff and screw, cut the tie-wraps. Remove clamp holding shielded cable in duct. Remove duct.

d. Remove the door latch sensor latch assembly for the door. It is attached by a Tx30 screw.

e. Remove the fan shroud "C" (refer to Figure 2-198) from the bottom of the stacker motor. It is held in place by pressure fit.

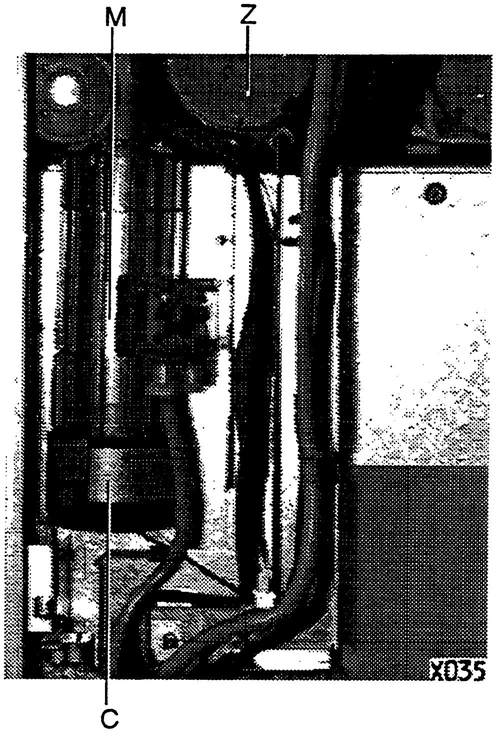


Figure 2-198. Stacker Motor Removal and Replacement (2)

f. Manually lower the stacker top assembly (refer to Note above).

g. Continue with the Steps below.

THIS PART OF THE PROCEDURE IS FOR A WORKING MOTOR.

h. Remove the cover from the stacker assembly.

i. Remove the knobs from the front of the stacker top assembly.

j. Remove the discharge station.

k. Remove the front cover from the stacker top. It is attached by 4 screws; 1 is accessible through a hole in the fixed wobbler plate. Refer to Figure 2-191, Item "1".

l. Remove switch bracket "B" (refer to Figure 2-192); then, reinstall it by the top screw only so that the bottom of the bracket is oriented to the left. This will keep the switches from being actuated or damaged. Just snug the top screw.

m. Move the stacker top assembly down until it is supported by the stacker table.

n. Power OFF the printer.

o. Remove the 2-Tx30 screws "3" (refer to Figure 2-193) that attach the lifter chains to the stacker top.

p. Remove fusing assembly (refer to Routine 61A1).

q. Remove the 7 mm nut and bolt attaching the one way clutch to the motor shaft (refer to Figure 2-197). Once the bolt is removed, slide the clutch assembly to the right to separate it from the motor shaft.

r. Disconnect X193 from the FUP** PCA.

s. Remove the 3-Tx20 screws "7" attaching the motor, and remove it (refer to Figure 2-197).

t. Reinstall in the reverse removal order.

u. Before installing the one way clutch, make sure that the blocks on the lifter chains are below the point that they connect to the stacker top assembly. This way, once the clutch is mounted on the motor shaft, it is easy to move the blocks into position for reinstalling on the stacker top assembly. Once the blocks are in place, install the attaching screws and tighten securely.

v. To re-install, complete this procedure in reverse removal order.

Stacker Rollers

Routine 72

72A. Pressure Rollers

72A1. Pressure Rollers Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Power OFF the printer at the operator panel.

b. Remove all covers from the stacker top assembly.

c. Remove 4-Tx20 screws “1” that attach profile bar “A”, and remove the bar (refer to Figure 2-199).

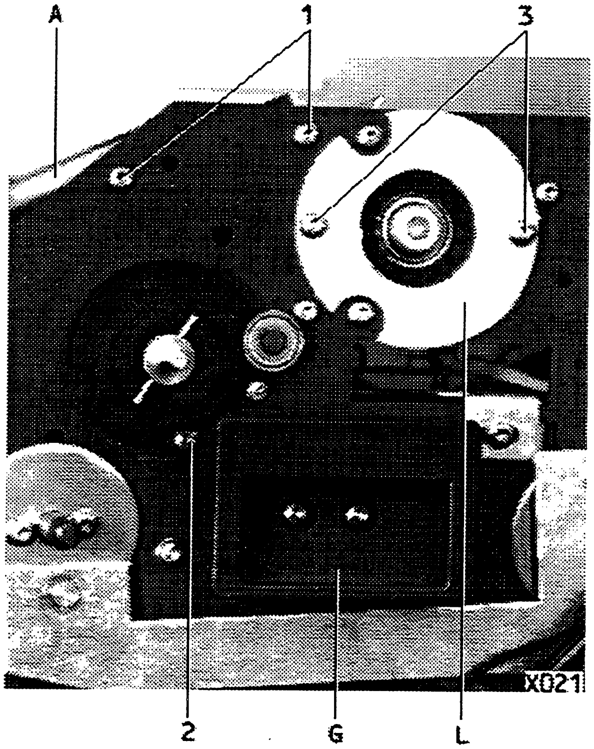


Figure 2-199. Stacker Rollers Removal and Replacement (1)

d. Loosen the 2-Tx20 screws that attach plate "B" and swivel it towards you (refer to Figure 2-200).

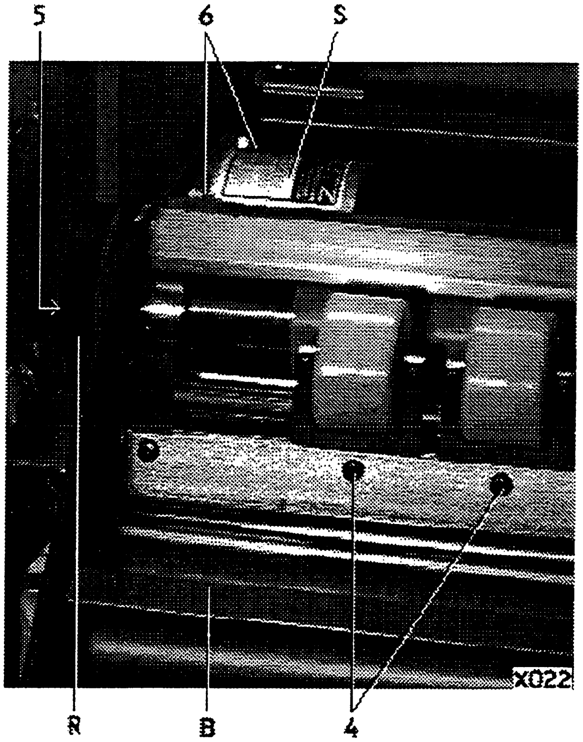


Figure 2-200. Stacker Rollers Removal and Replacement (2)

e. Loosen screws "4" to remove the pressure rollers.

f. Install replacement rollers as necessary, making sure that each rests correctly on the tab stops. If the new roller is not parallel to within 0.3 mm (0.012 inch) with the tension roller, bend the mounting springs until this is accomplished.

g. Continue the replacement procedure in reverse removal order.

72B. Tension Roller

72B1. Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Power OFF the printer at the operator panel.

b. Remove all covers from the stacker top assembly.

c. Loosen the 4-Tx25 screws "6" that attach drive motor "S" to release tension on the drive belt (refer to Figure 2-200).

d. Loosen screw "5" to remove pulley "R" and the drive belt (refer to Figure 2-200). Take care not to lose the spacer or woodruff key.

e. Remove the 2-Tx20 screws "3" that attach the bearing plate "L", and remove it (refer to Figure 2-199). Note the installation of the washers behind the plate and take care not to lose them (refer to Figure 2-199).

f. Remove the pressure roller.

g. Install a replacement roller in reverse removal order. Take care to install the washers correctly.

72C. Paper Tension Step Motor

72C1. Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Power OFF the printer at the operator panel.

b. Remove all covers from the stacker top assembly.

c. Disconnect plug X197 and remove the connector from the connector block. Remove the cable from the cable duct.

d. Remove the 4-Tx25 screws "6" that attach step motor "S", and remove the motor (refer to Figure 2-200).

e. Install replacement motor in reverse removal order.

72D. Static Discharge Station

72D1. Removal and Replacement of Antistatic Strips. Estimated time to complete this procedure: 30 minutes.

a. Remove paper from the stacker top assembly.

b. Pull out discharge station with handle "G" (refer to Figure 2-199).

c. Remove the 6-Tx20 screws that attach the antistatic strips, and remove them.

d. Install replacement antistatic strips in reverse removal order.

Note Two more antistatic straps are located near the paper transport assembly (refer to Routine 51B1 for procedure).

Paddle Wheel Assembly

Routine 73

73A. Paddle Wheels

73A1. Paddle Wheels Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Power OFF the printer.

b. Remove the stacker top assembly (refer to Routine 71A1).

c. Remove the Tx6 screw that attaches timing disk "T", and remove it (refer to Figure 2-201).

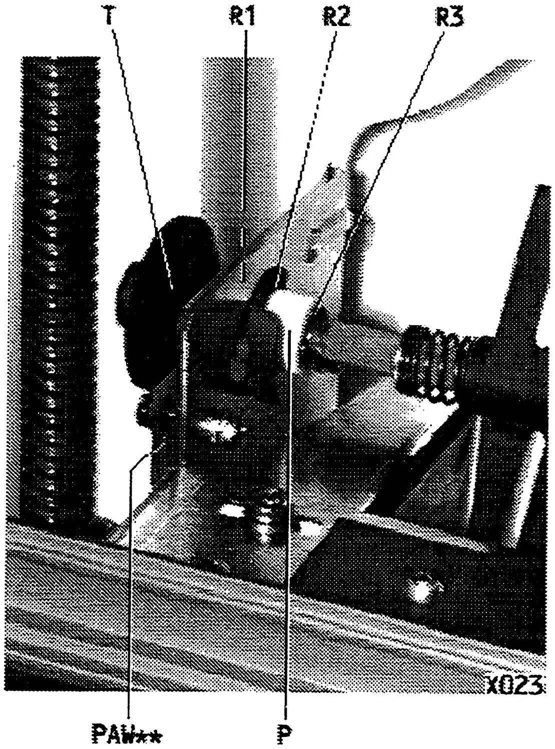


Figure 2-201. Paddle Wheels Removal and Replacement (1)

d. Disconnect plug X43c from the PAW** PCA (refer to Figure 2-201).

e. Remove the 2 screws that attach the PAW** PCA, and remove the PCA.

f. Remove circlips "R1" and "R2", and remove plastic bushing "P" (leave internal circlip "R3" in place) (refer to Figure 2-201).

g. Remove the 4-Tx10 screws "4" that attach motor "M", and remove the motor (refer to Figure 2-202).

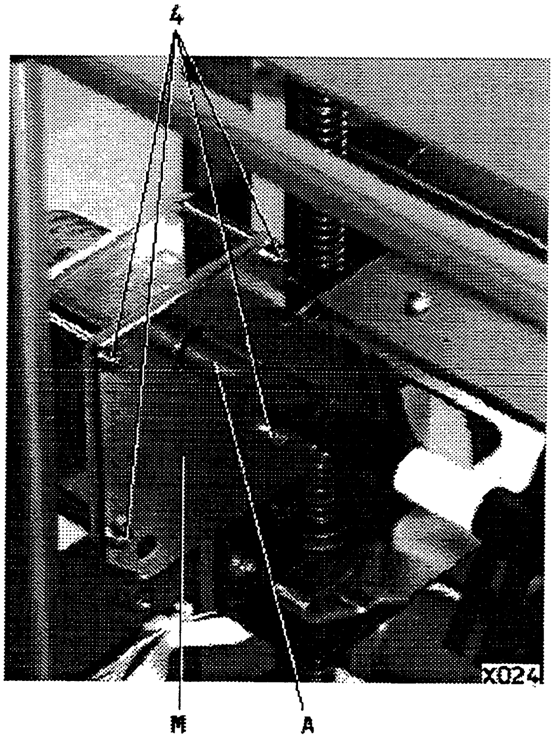


Figure 2-202. Paddle Wheels Removal and Replacement (2)

h. Remove the paddle wheel axle "A" on motor side (refer to Figure 2-202).

i. Install replacement paddle wheels in reverse removal order. Take care to reinstall bushing "P" so that circlip "R2" can be installed.

73B. Paper Edge Sensor

73B1. Paper Edge Sensor Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Remove the front stacker cover (refer to Routine 71A1).

b. Disconnect plug X200 (refer to Figure 2-203).

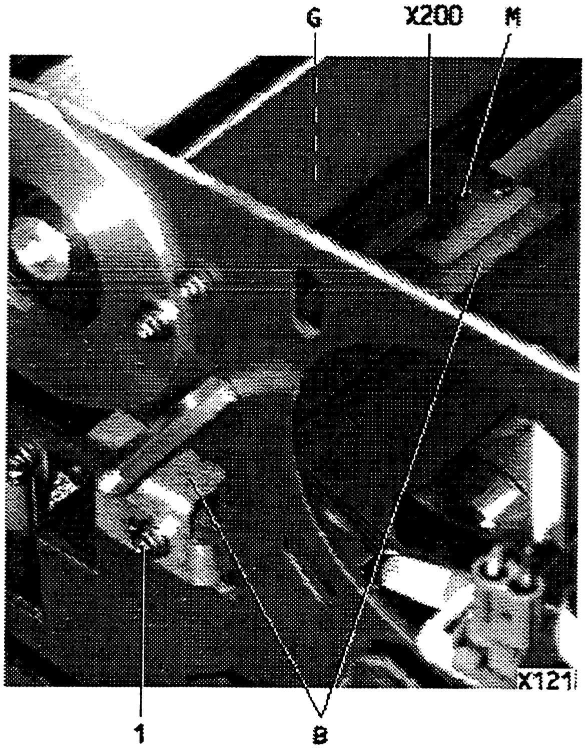


Figure 2-203. Paper Edge Sensor Removal, Replacement, and Alignment

c. Remove alignment screw "1" (refer to Figure 2-203) that attaches sensor bracket "B", and remove the bracket.

d. Remove the screw that attaches the sensor to bracket "B".

e. Install a replacement sensor in reverse removal order

f. Do adjustment and alignment Routines 73B2 and 73B3.

73B2. Paper Edge Sensor Mechanical Adjustment. Estimated time to complete this procedure: 15 minutes.

Note No paper can be before the light barrier to do this procedure.

---

a. Connect a voltmeter between ground and test point M (refer to Figure 2-203).

b. Loosen the Tx20 screw "1".

c. Move bracket "B" until the light sensor is aligned with the hole in extrusion "G", and the voltage at test point "M" is greater 4 Vdc.

d. Hold a piece of white paper between the pressure rollers so that it blocks the light sensor. Observe that the voltage at test point "M" drops to less than 1.5 Vdc. If the voltage is greater than 1.5 Vdc, do this procedure again.

73B3. Paper Edge Sensor Calibration. Estimated time to complete this procedure: 15 minutes.

a. Remove paper from the stacker top assembly.

b. Start preparation mode as follows:

- Open PC drum door, then close it.
- Press CHECK RESET twice

c. When the stacker top assembly is moving up/down during preparation, simultaneously press READY, STOP and EJECT on the stacker operator panel. All LEDs on the stacker operator panel will light to indicate that it is in alignment mode.

d. If the alignment is successful, all LEDs will go OFF, followed by the STOP LED that will light again.

e. If the alignment is not successful, all the LEDs will stay ON. In case of an error clean, adjust, or replace the sensor. To align the new sensor, power OFF the printer, then ON. The printer will go through the alignment automatically at the beginning of the paper insert routine.

Note Alignment of the paper edge sensor is automatically performed at the beginning of every paper insert mode.

73C. Paper Misfeed Sensor

73C1. Paper Misfeed Sensor Removal and Replacement. Estimated time to complete this procedure: 15 minutes.

a. Power OFF the printer.

b. Disconnect plug X78C and loosen the cable clamp (refer to Figure 2-204).

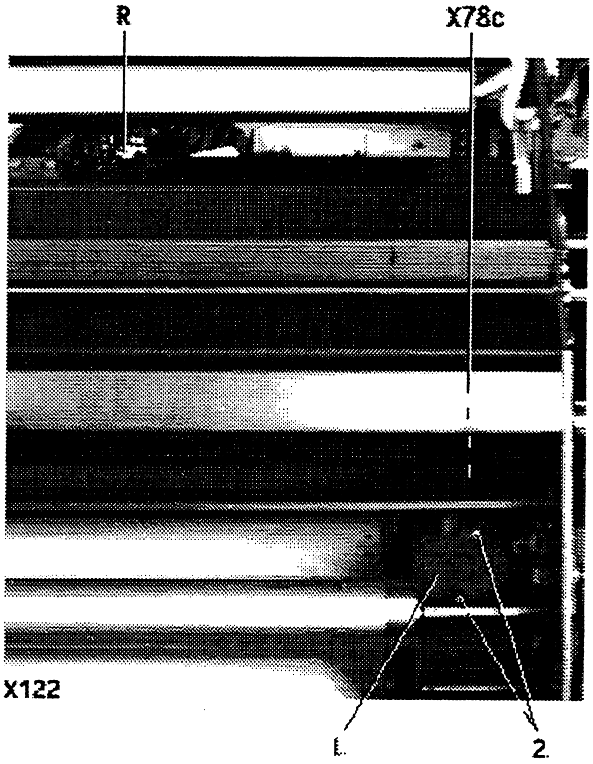


Figure 2-204. Paper Misfeed Sensor Removal, Replacement, and Adjustment

c. Remove the 2-Tx10 screws “2” that attach the sensor to its mounting bracket, and remove the sensor.

d. Install the replacement sensor in reverse removal order.

73C2. Paper Misfeed Sensor Adjustment. Estimated time to complete this procedure: 15 minutes.

a. Remove the cover from the top stacker.

b. Make sure that there is no paper in the paper path.

c. Observe that the status LED is OFF. On the face of the sensor there is an emitter, a light sensor, and a small status LED. When the beam is interrupted, the status LED will light. This is the only time that you can see the status LED.

d. Loosen the 2-Tx10 screws “2” that attach the sensor (refer to Figure 2-204).

e. Turn the sensor clockwise until the LED flashes ON, and mark the position.

f. Turn the sensor counterclockwise until the LED flashes ON again, and mark the position.

g. Center the sensor between the 2 marked positions and tighten screws "2" (refer to Figure 2-204).

h. Check to see that the status LED lights when paper is placed between the sensor and reflector.

73D. Wobbler

73D1. Wobbler Removal and Replacement (Operator Panel Side). Estimated time to complete this procedure: 30 minutes.

a. Remove the cover from the top stacker.

b. Remove the knobs on the front of the stacker top assembly.

c. Remove operating elements of stacker.

d. Remove the discharge station (refer to Routine 72D1).

e. Remove the front cover. Remove the 4 screws "1" from inside (refer to Figure 2-191). Note that one screw is accessible through an access hole in the vertical wobbler plate.

f. Disconnect plug X266 (refer to Figure 2-205).

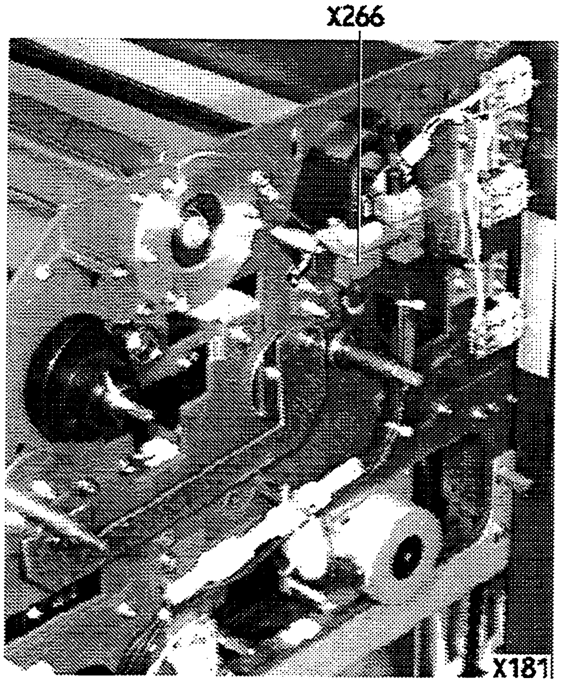


Figure 2-205. Wobbler Removal, Replacement, and Adjustment (1)

g. Remove the 2-Tx20 screws "2" and the 2-Tx10 screws "3" that attach the wobbler, and remove the wobbler (refer to Figure 2-206).

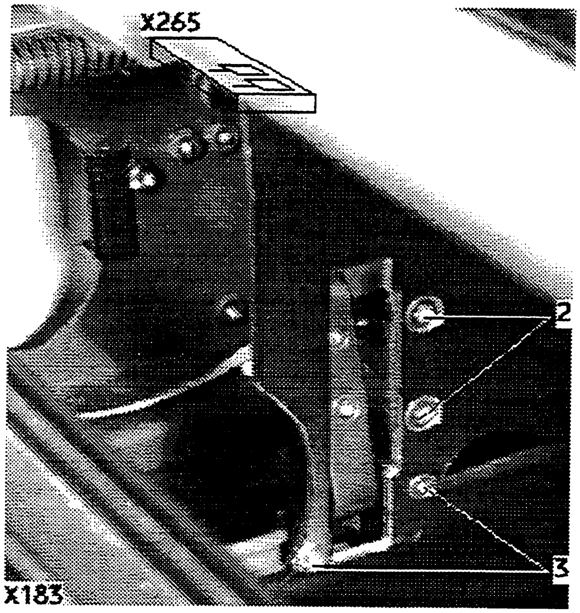


Figure 2-206. Wobbler Removal, Replacement, and Adjustment (2)

h. Install a replacement wobbler in reverse removal order.

73D2. Wobbler Removal and Replacement (Drive Side). Estimated time to complete this procedure: 30 minutes.

a. Disconnect plug X265 at wobbler (refer to Figure 2-206).

b. Remove the 2-Tx20 screws "2" and the 2-Tx10 screws "3" that attach the wobbler, and remove the wobbler (refer to Figure 2-206).

c. Install a replacement wobbler in reverse removal order.

73D3. Fixed Wobbler Plate Adjustment.

Note This routine requires precision adjustments by factory personnel. Please contact your local Response Center product support before proceeding.

Estimated time to complete this procedure: 30 minutes.

a. Check paper path static adjustment (refer to Routine 52B1).

b. Insert foil gauge per Routine 52B1. Allow end of foil to drop down into top of stacker, instead of looping foil back out the top of the fuser.

c. Swivel off tension rollers in the stacker top (lever to OFF).

d. Insert foil gauge into the stacker top assembly.

e. Tension gauge foil evenly along the bottom edge, and swivel on the stacker tension rollers.

f. Check the clearance between the edge of the paper and fixed wobbler plate "B" (refer to Figure 2-207). The clearance should be 5 mm +/- 0.5 mm (0.197 inch +/- 0.020 inch) over the length of the plate.

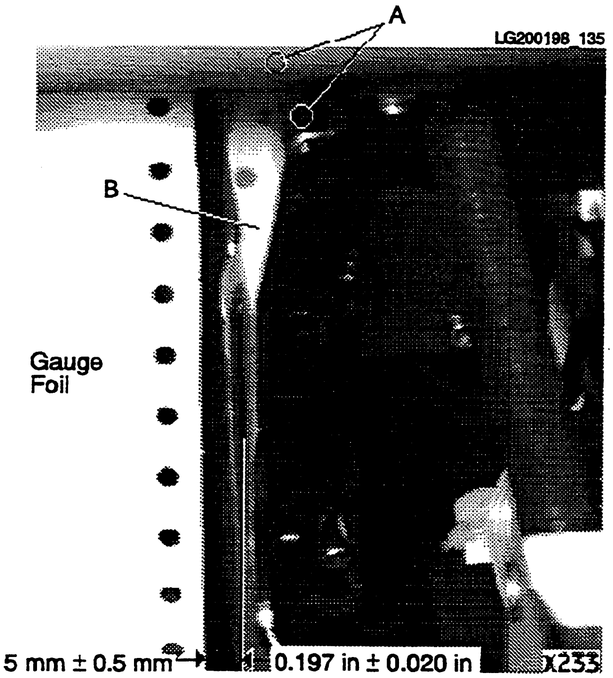


Figure 2-207. Wobbler Removal, Replacement, and Adjustment (3)

g. If adjustment is required, refer to Figure 2-207, and proceed as follows:

- Loosen the 2-Tx20 screws "A". Screws "A" are located from under the stacker looking up.
- Adjust the clearance by moving plate "B".
- Tighten 2 screws "A".

Stacker Tray Assembly

Routine 74

74A. Stacker Tray Assembly

74A1. Stacker Tray Assembly Removal and Replacement. Estimated time to complete this procedure: 15 minutes.

a. Move stacker top assembly upward and power down printer.

b. Remove 2 screws (Tx50).

c. Disconnect plugs X201 and X260.

Note Turn vertical adjustment screws "H" (refer to Figure 2-208) for adjustment only.

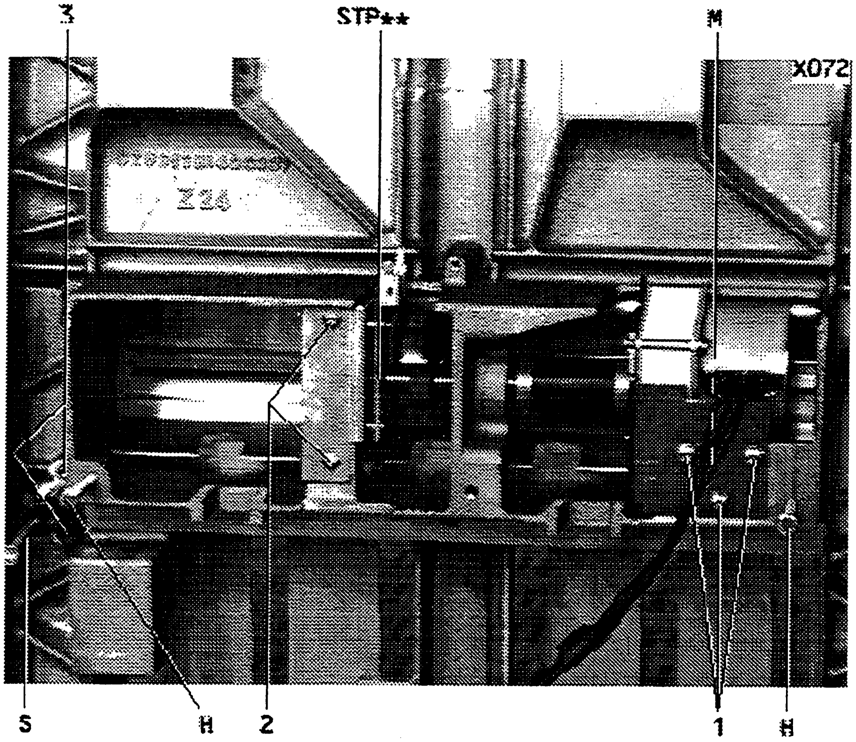


Figure 2-208. Stacker Tray Removal and Replacement

d. Remove stacker tray assembly.

e. Reinstall or replace in reverse removal order.

f. If necessary, adjust new stacker tray horizontally with vertical adjustment screws "H" (refer to Figure 2-208) and prism spirit level.

74B. Stacker Tray Motor

74B1. Stacker Tray Motor Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Remove stacker tray assembly (refer to Routine 74A1).

b. Remove the 3-Tx25 screws "1" that attach motor "M", and remove the motor (refer to Figure 2-208).

c. Install a replacement motor in reverse removal order.

74C. Stacker Tray Position Sensor (STP** PCA)

74C1. Stacker Tray Position Sensor Removal and Replacement.

a. Remove stacker tray assembly (refer to Routine 74A1).

b. Remove the 2-Tx20 screws "2" that attach the STP** PCA, and remove the PCA (refer to Figure 2-208).

c. Install a replacement PCA in reverse removal order.

LED Array

Routine 81

81A. Complete Assembly

Caution Observe all ESD procedures.

81A1. LED Array Removal.

a. Power down printer at the operator panel; set the main circuit breaker to OFF.

b. Remove PC drum (refer to Routine 41A1).

c. From the front of the printer, remove the 2-Tx20 screws “1” under the LED array (refer to Figure 2-209).

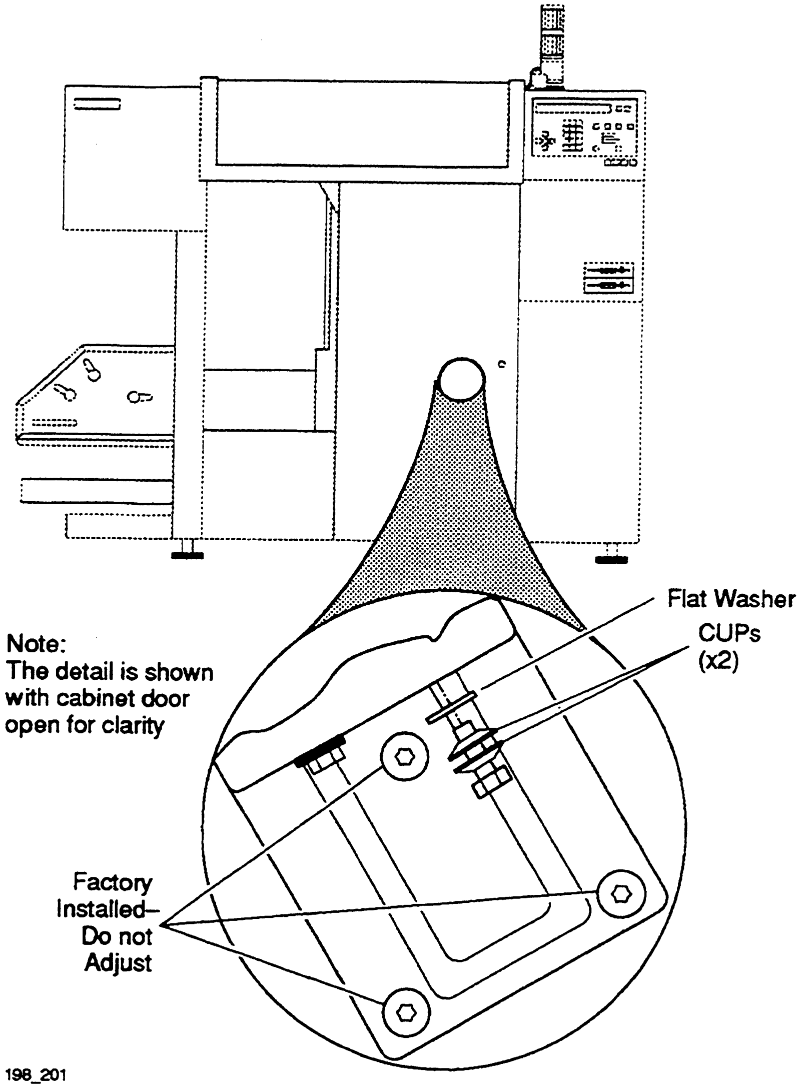

Flat Washer
CUPs (x2)
Note:
The detail is shown with cabinet door open for clarity
Factory Installed–Do not Adjust
198_201

Figure 2-209. LED Array Removal (1)

d. Open the left rear door of the printer.

e. Remove cover "A" (2-Tx10 screws) from power supply of LED array. Disconnect plugs X90 and X92 (refer to Figure 2-210).

f. Unscrew the LED 3 V cable "K" (2 screws "2", Tx20) (refer to Figure 2-210).

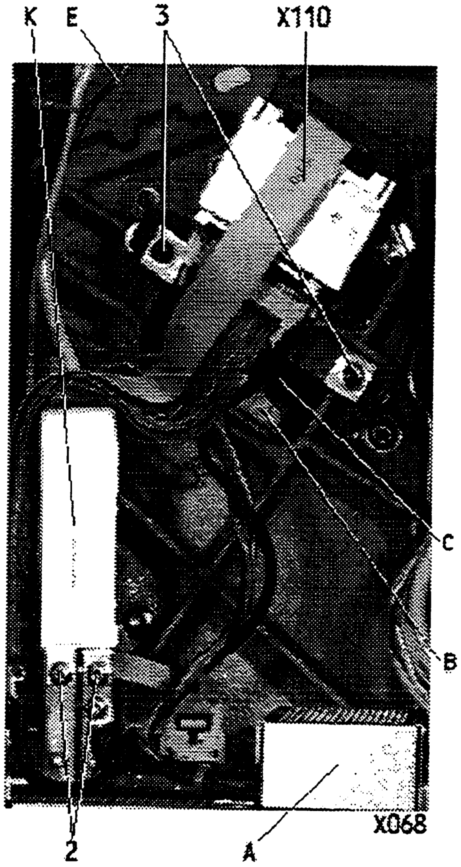


Figure 2-210. LED Array Removal (2)

Caution Bending the 3 V bus cable will cause the metal to tear or break.

---

g. Disconnect ribbon cables X97 and X98 from LED array.

h. Disconnect ribbon cable X110 (wide print array only) (refer to Figure 2-210).

i. Disconnect ground terminal "E" (1-Tx20 screw) (refer to Figure 2-210).

j. Loosen and push aside plate spring "C"; remove cover "B" (refer to Figure 2-210).

k. Remove the 2-Tx30 screws "3" (refer to Figure 2-210).

Warning **The LED array weighs approximately 32 pounds (14.5 kg); use care when lifting it.**

Caution Do not lift the LED array in the area of plugs "M" (refer to Figure 2-211) to prevent damage to the wires. To prevent contamination, do not touch any optical LEDs.

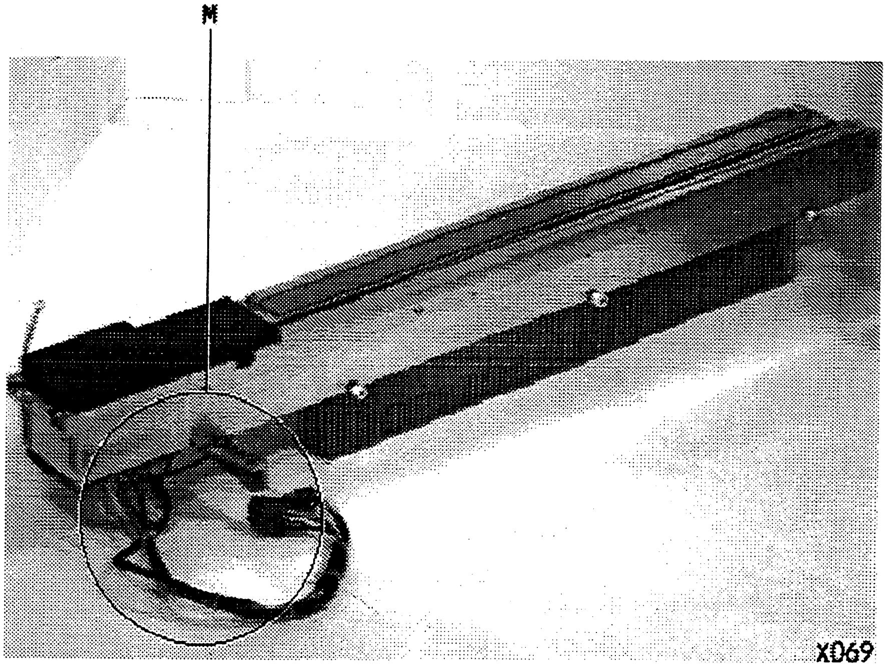


Figure 2-211. LED Array Removal (3)

l. Slide out the array assembly. Cautiously lay it down without damaging the optical LEDs or array cable.

m. Unscrew the 3 V cable (2-Tx20 screws) from the old LED array.

Caution

Bracket “F” (refer to Figure 2-212) is aligned specially for each printer, and must remain with the printer; it is not a replaceable part.

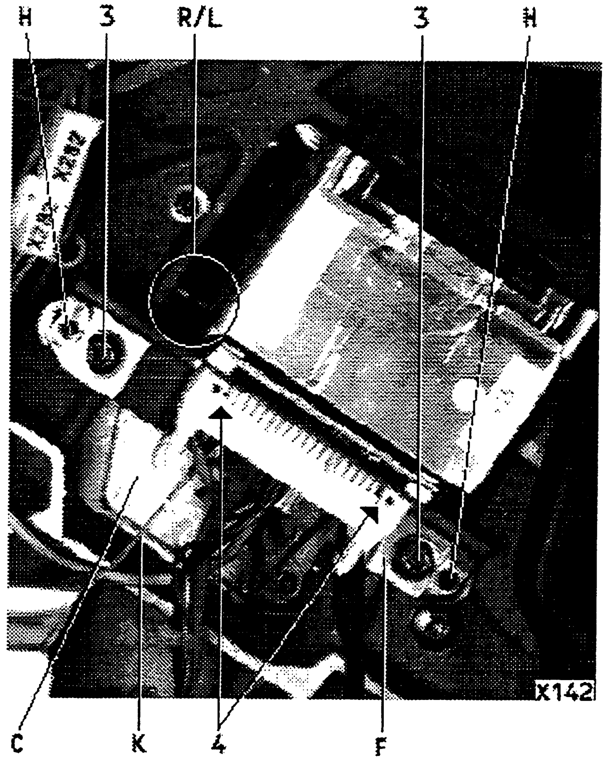


Figure 2-212. LED Array Replacement (1)

n. Remove mounting bracket “F” (2 screws “4”) before changing LED array (refer to Figure 2-212).

o. Unscrew new LED array power supply from holding brackets "W" (refer to Figure 2-213). Mount bracket "F" (refer to Figure 2-212) and the LED array cable "K" (refer to Figure 2-210).

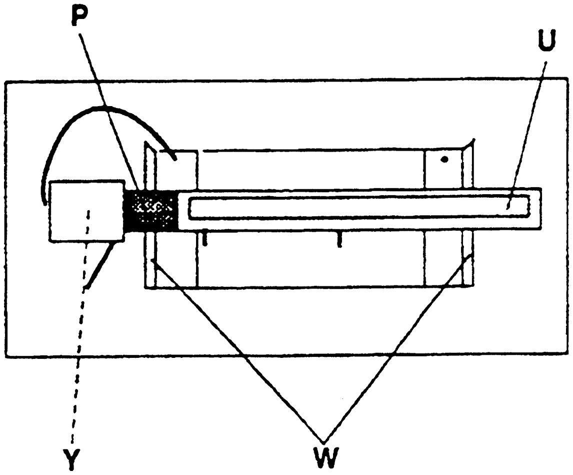


Figure 2-213. LED Array Replacement (2)

p. Remove the NV-PROM from the ZGS** PCA (slot 2 of the main module) and pack it with the old LED array.

q. Unpack new PROM "Y" (which belongs to new LED array) and install it on the ZGS** PCA (refer to Figure 2-213). Reinstall the ZGS** PCA in the cardcage.

r. Tighten bracket "F" (2 screws "4") on the new LED array (refer to Figure 2-212).

s. Install cable "K" on the new LED array (refer to Figure 2-210).

t. Lift out new LED array from transport box.

u. Strip off adhesive tape "U" from new LED array and stick it on old LED array just before installing new LED array (refer to Figure 2-213).

v. Pack the old LED array including PROM "Y" in order to send it back (refer to Figure 2-213).

w. Do Routine 81A2.

81A2. LED Array Installation.

Caution Observe all ESD procedures.

Parts required:

- Screw kit, HP part number 01820940-SNI (provided with replacement LED array).

a. Do Routine 81A1.

b. Remove tape strip "U", if not already peeled away (refer to Figure 2-213). Insert LED array; place guide rollers "R" into guide groove "L" and push in cautiously until guide pins "H" on bracket "F" are aligned (refer to Figure 2-212).

c. From the front of the printer, install screws “1” (refer to Figure 2-209). Install the replacement mounting screws with the metal washer and the cup (compression) washers in the configuration shown in the figure.

d. Tighten the screws then back them off 90 degrees (1/4 revolution). When properly installed, the compression washers should be fully compressed.

e. From the rear of the printer, tighten 2 screws “3” and 2 screws “4” (refer to Figure 2-212).

f. Attach cover “B” and secure with spring plate “C” (refer to Figure 2-210).

g. Reconnect ground terminal “E” (refer to Figure 2-210).

h. Reconnect plugs X90 and X92 to LED array power supply; remount cover “A” (refer to Figure 2-210).

i. Secure LED array cable “K” to power supply unit (2 screws “2”, Tx25) (refer to Figure 2-210).

j. Reconnect plugs X97 and X98 to LED array.

k. Reconnect plug X110 (wide print array only) (refer to Figure 2-210).

l. Reinstall covers and PC drum; close doors.

m. Switch ON printer and allow to warm up.

n. Test new array by printing Submodule Print Test.

81B. LED Array Cleaning

Caution Observe all ESD good practice procedures.

---

a. Remove LED array (refer to Routine 81A1).

b. Vacuum LED array. (If LED array is for wide print, close SELFOC protective cover.)

c. Remove plastic cover "P" (refer to Figure 2-213).

d. Open SELFOC protective cover manually (refer to arrow in Figure 2-214).

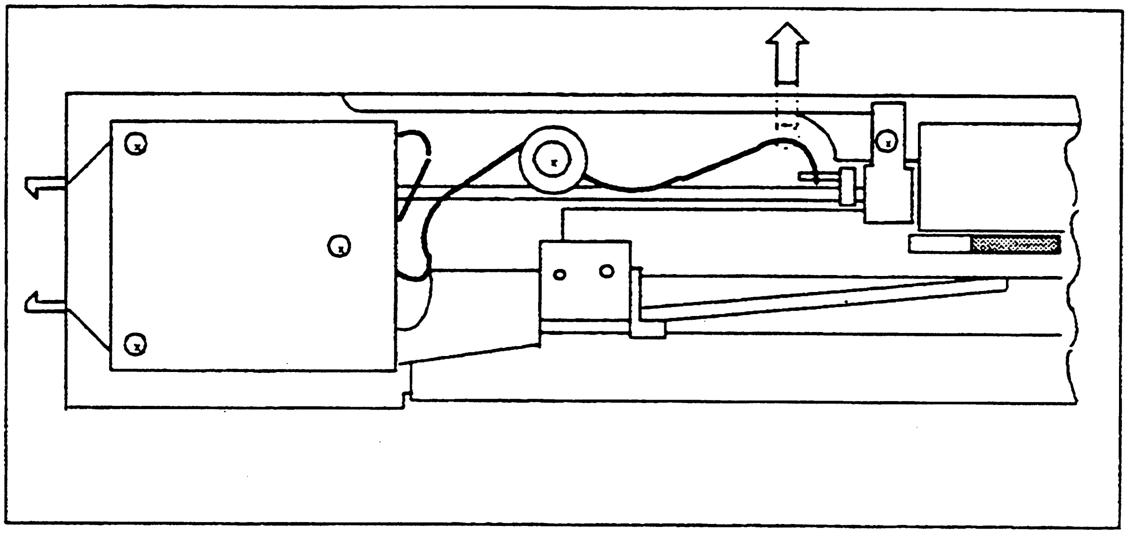


Figure 2-214. LED Array Cleaning (2)

e. Clean LED array with dry, soft and lint-free tissues. Use suction nozzle to remove paper clippings.

f. Reinstall LED array (refer to Routine 81A).

Power Control Boards

Routine 91

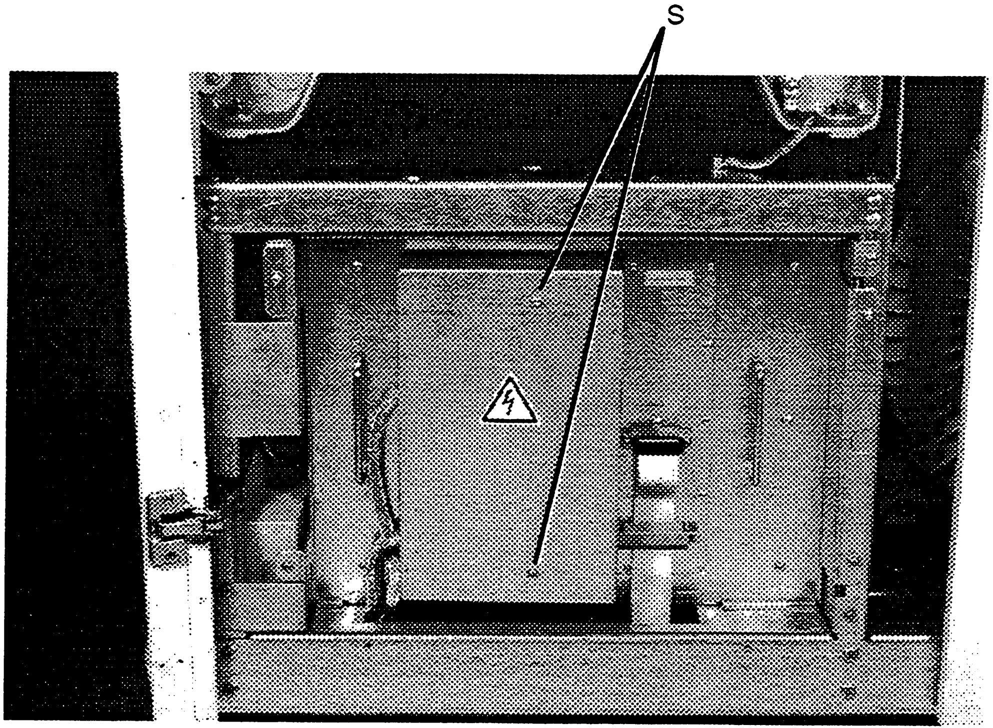
91A. Heater Assembly (FUP** PCA)

91A1. Heater Assembly Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Power OFF the printer at the operator panel. Wait approximately 5 minutes while the capacitors on the PCA discharge.

b. Open the printer front door.

c. Remove the 2-Tx20 screws "S" securing the cable connector cover (refer to Figure 2-215).



fm1021

Figure 2-215. Heater Assembly Access (1)

d. Disconnect all cables connected to the front of the assembly, and place them within the printer frame where they will not be damaged.

e. Remove the 4-Tx20 screws "X" that secure the heater assembly in the printer (refer to Figure 2-216).

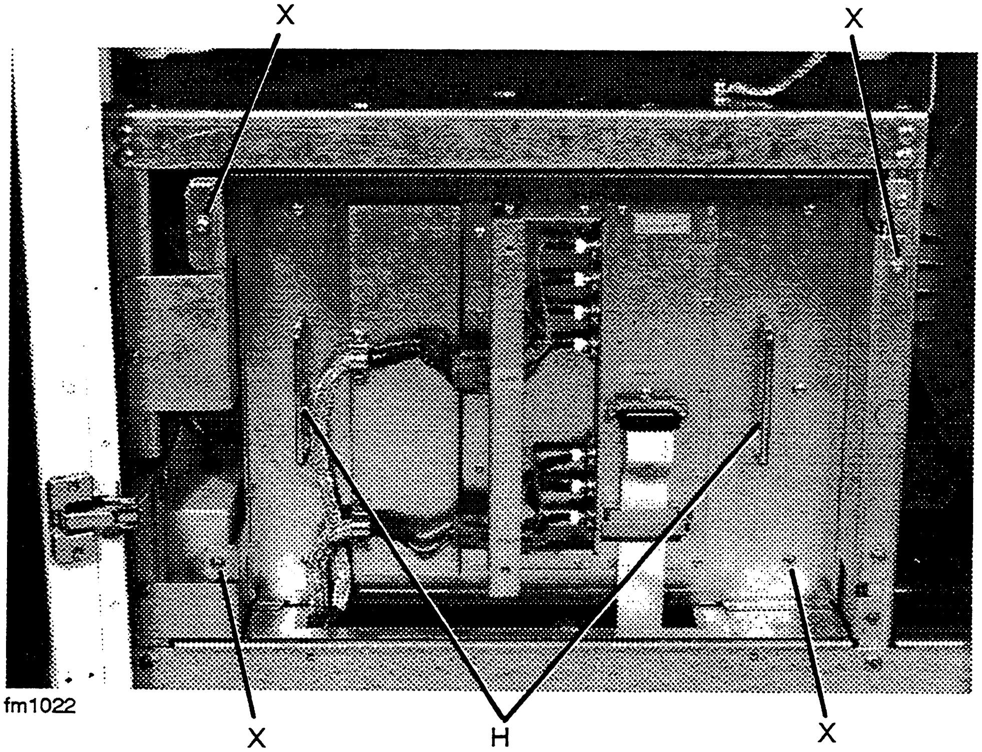


Figure 2-216. Heater Assembly Access (2)

f. Using the 2 handles "H", carefully remove the heater assembly.

g. Reassemble in reverse order.

Note

If the replacement is a "D91" assembly, verify that it is strapped for the correct line fequency. Below are the proper connections for both:

- 50 Hz: Connect X271b (zero leading connection) to plug X271 on the FUP** PCA. Connect X271 from the equalizer to the storage connector X271b on the FUP** (refer to Figure 2-217).
- 60 Hz: Connect X271b (zero leading connection) to the storage connector X271b. Connect X271 from the equalizer to the connector marked X271 (refer to Figure 2-217).

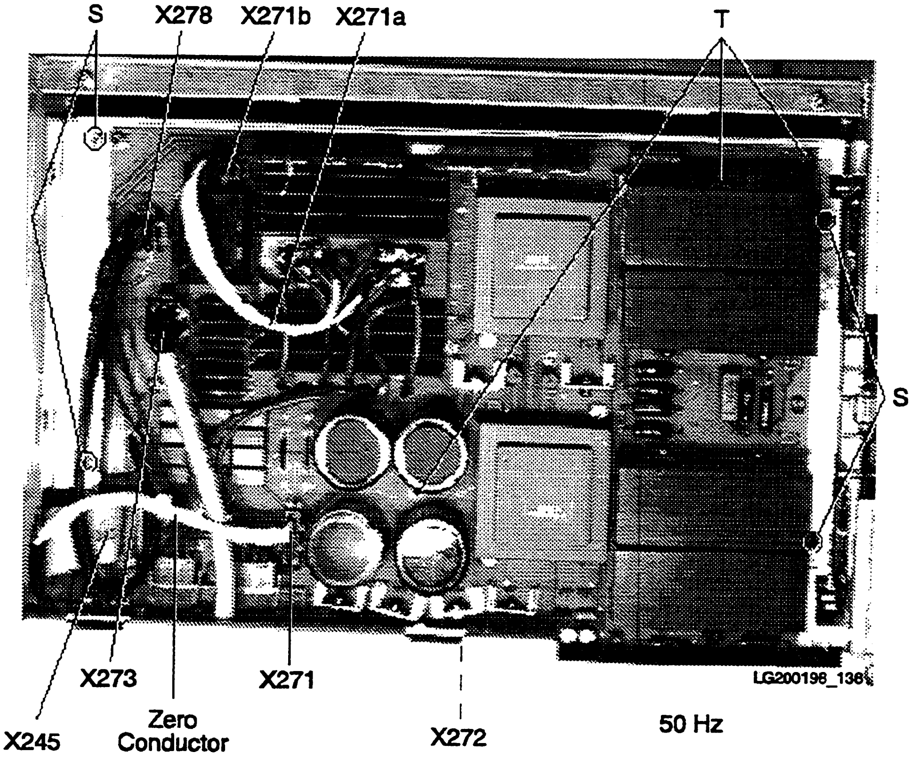

S
X278
X271b
X271a
T
S
X273
X271
LG200198_136
X245
Zero Conductor
X272
50 Hz

Figure 2-217. Heater (FUP** PCA) Removal and Replacement (1)

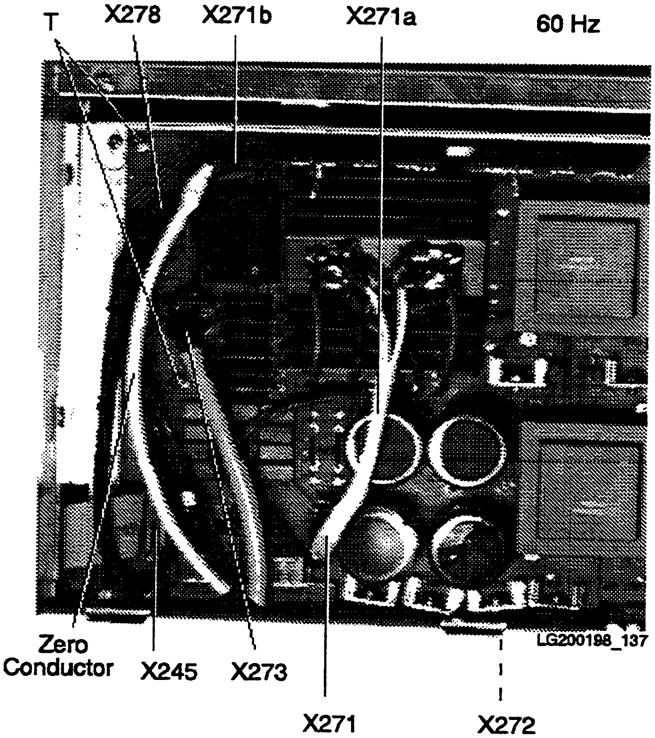

T
X278
X271b
X271a
60 Hz
Zero Conductor
X245
X273
LG200198_137
X271
X272

Figure 2-218. Heater (FUP** PCA) Removal and Replacement (2)

91B. Power Control Interface (PCI PCA)

91B1. Power Control Interface Removal and Replacement. Estimated time to complete this procedure: 30 minutes.

a. Power OFF the printer at the operator panel.

b. Open doors at drive side.

c. Set main circuit breaker to OFF.

d. UNPLUG the printer from the power receptacle.

e. Open cover of main circuit breaker (a single 4 mm Allen screw fastens the cover).

f. Disconnect plugs X1, X3, X4, X5, X6, X9, X112, X113, and X115 from the PCI PCA.

g. Unlock PCA locks and remove the PCA.

h. Install a replacement PCI PCA in reverse order.

Note

The PCI PCA can be strapped for both 50 Hz or 60 Hz operation. Listed below are the proper connections. Refer to Figure 2-219

- Connector X7 for 50 Hz.
- Connector X8 for 60 Hz.

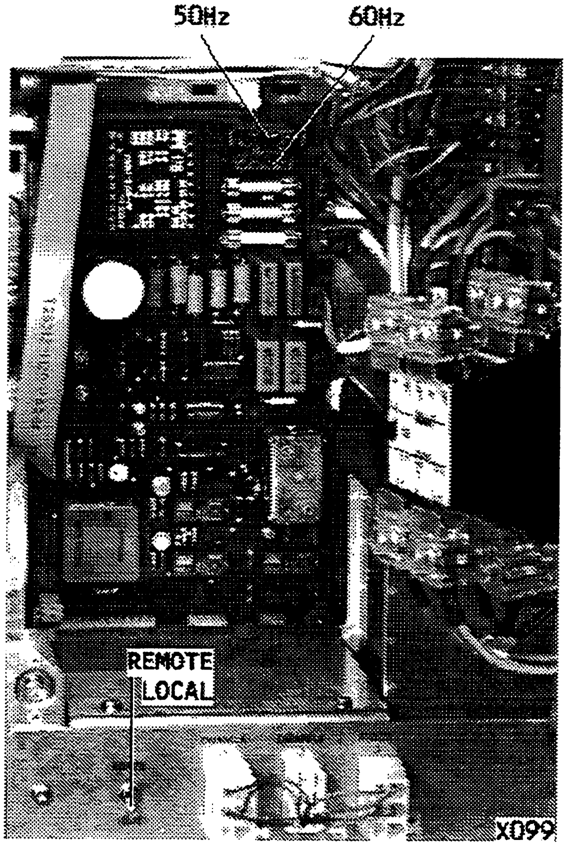


Figure 2-219. Power Control Interface PCA Removal and Replacement

Power Supplies

Routine 92

92A. Power Supply SV1/E35 (3.15-5V)

92A1. Power Supply SV1/E35 Removal and Replacement.

a. Power OFF the printer at the operator panel.

b. Open doors on drive side.

c. Remove the 2-Tx10 screws "1" that attach cover "A" (refer to Figure 2-220), and remove the cover.

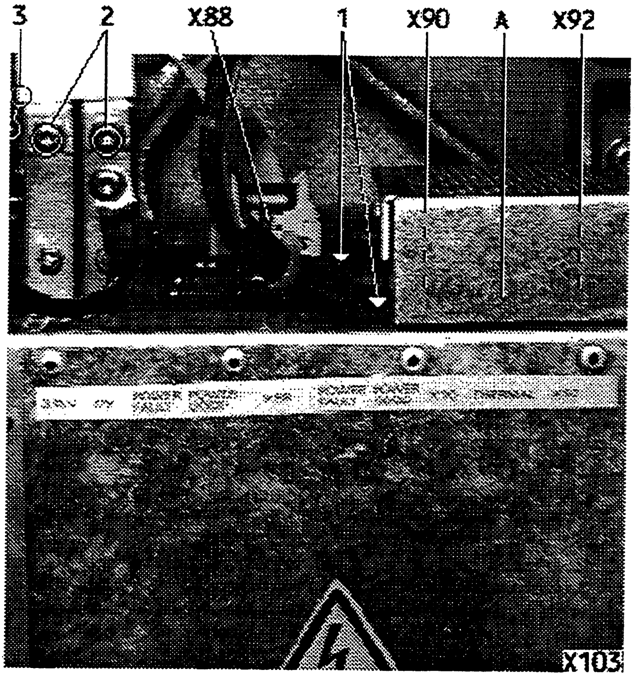


Figure 2-220. Power Supply sV1/E35 (3.15-5V) Removal and Replacement

d. Disconnect plugs X88 and X90.

e. Loosen the 2-Tx25 screws "2" (refer to Figure 2-220) that attach the power straps. Pull the power straps up gently to disconnect them from the power supply.

f. Remove the 2-Tx20 screws "3" (refer to Figure 2-220) that attach the power supply.

g. Tilt the power supply out towards you; then, reach down behind the supply and disconnect plug X89.

h. Remove the power supply, being careful to not stress the power straps that go to the LED array.

i. Install a replacement power supply in reverse removal order.

92B. Power Supply SV2/E41 (5-15V)

92B1. Power Supply SV2/E41 Removal and Replacement. Estimated time to do this procedure: 30 minutes.

a. Power OFF the printer at the operator panel.

b. Pull out the controller module to the fully extended position.

c. From the left side of the controller module, remove the 2-Tx20 screws "A" that attach cover "B" (refer to Figure 2-221), and remove the cover.

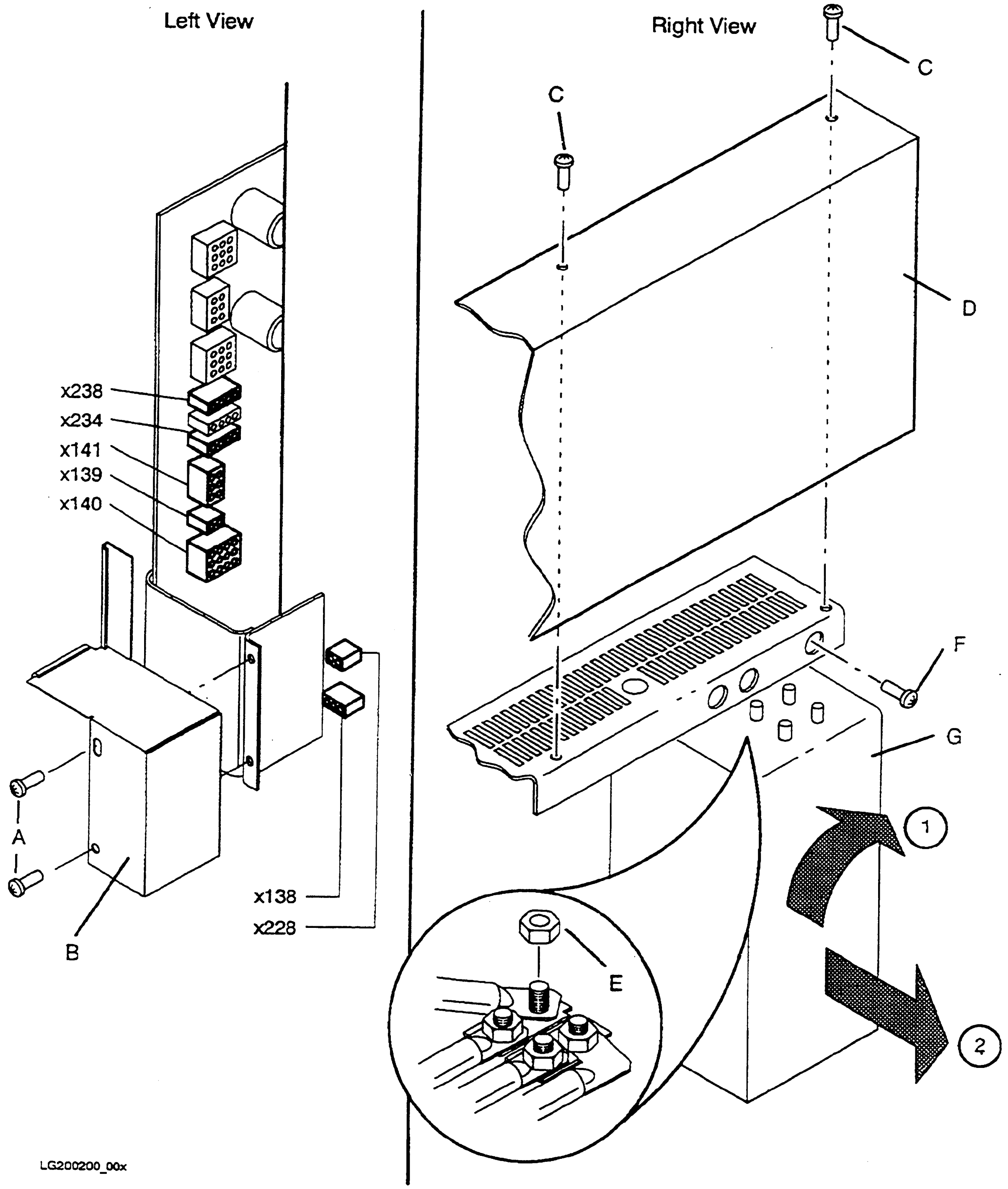

Left View
Right View
x238
x234
x141
x139
x140
x138
x228
A
B
C
C
D
E
F
G
①
②
LG200200_00x

Figure 2-221. Power Supply SV2/E41 (5-12V) Removal and Replacement

d. Disconnect plugs X238, X234, X141, X139, X140, X138, and X228.

e. From the right side of the controller module, remove the 3-Tx20 screws "C" that attach cover "D" (refer to Figure 2-221), and remove the cover.

f. Remove the 4-10 mm nuts "E" that attach the 5V power cables on the top of the power supply. Note the locations of the red and blue cables.

g. Remove the Tx30 screw "F" that attaches power supply "G" (refer to Figure 2-221). Tilt the power supply to the right (Arrow 1), then toward you (Arrow 2) to remove the supply.

h. Reinstall a replacement power supply in the reverse removal order.

92C. Power Supply SV3/E37 (24-40V)

92C1. Power Supply SV3/E37 Removal and Replacement. Estimated time to do this procedure: 30 minutes.

a. Power OFF the printer at the operator panel.

b. Open the rear doors.

c. Open the cover over submodule 2 (fastened by a 4 mm Allen screw).

d. Loosen the hose clamp for tube “S” (refer to Figure 2-222 and Figure 2-223), and remove the tube from the bulkhead.

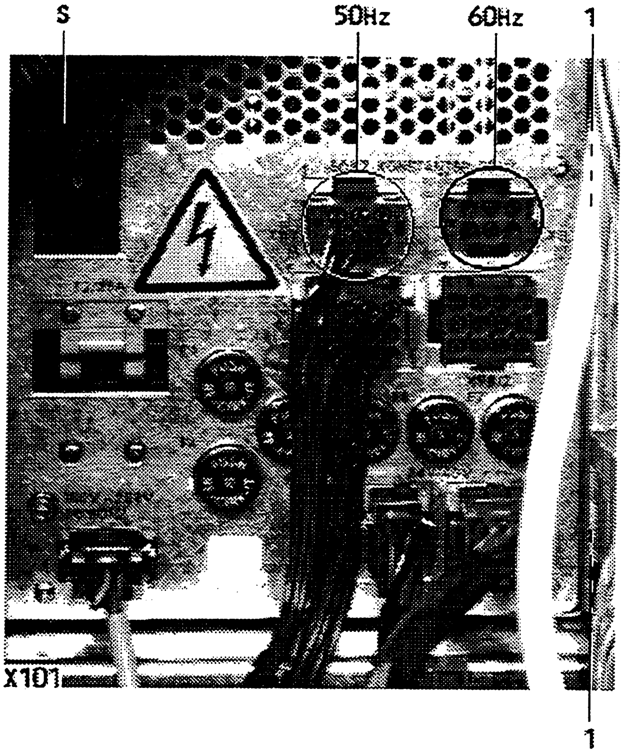


Figure 2-222. Power Supply SV3/E37 (24-40V) Removal and Replacement (1)

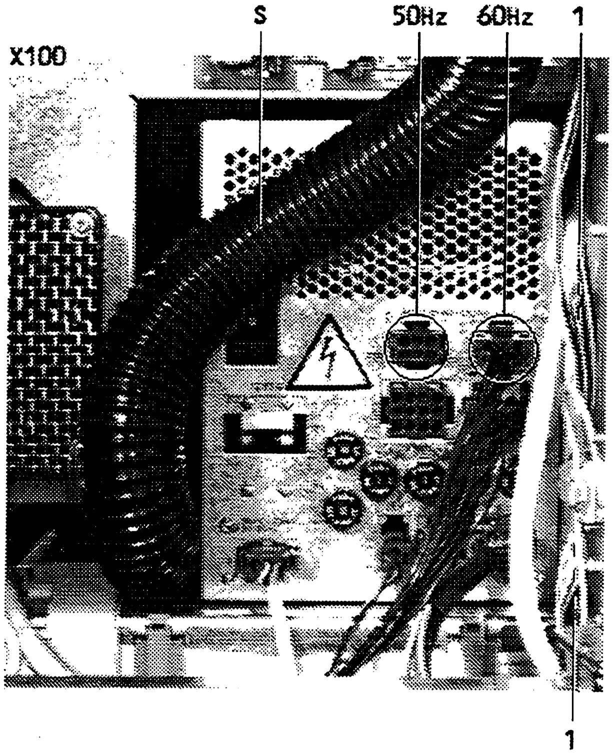


Figure 2-223. Power Supply SV3/E37 (24-40V) Removal and Replacement (2)

e. Disconnect plugs X116, X117, X118, X119, X121, and X122.

f. Remove 2-Tx20 the screws "1" (refer to Figure 2-222 and Figure 2-223), and remove power supply.

Caution When installing the power supply, take care not to damage the TREK PCA.

---

g. Install a replacement power supply in reverse removal order.

Note Power Supply E37 can be strapped for both 50 Hz or 60 Hz. Below are the proper connections for both:

- 50 Hz: Both X117 and X118 to the left (refer to Figure 2-222 for locations).
- 60 Hz: Both X117 and X118 to the right (refer to Figure 2-223 for locations).

92D. Power Supply SV4/E25

92D1. Power Supply SV4/E25 Removal and Replacement. Estimated time to do this procedure: 30 minutes.

a. Power OFF the printer at the operator panel.

b. Open the rear doors.

c. remove the cover over the developer assembly (fastened by a 4 mm Allen screw).

d. Open cable clamp "K" (refer to Figure 2-224).

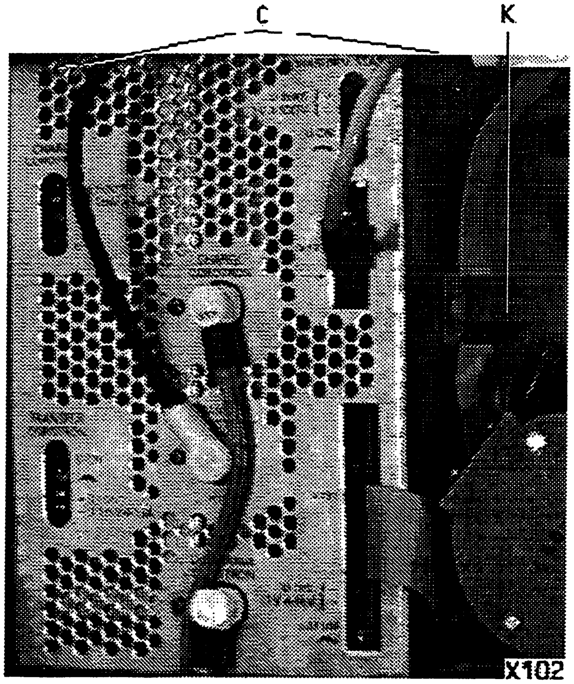


Figure 2-224. Power Supply SV4/E25 Removal and Replacement (1)

e. Disconnect plugs X129, X131, X132, X133, X134, and X137.

f. Loosen the 2-Tx20 screws "C" (refer to Figure 2-224) that attach the power supply.

g. Remove the 2-Tx20 screws "2" (refer to Figure 2-225) that attach the power supply to the panel in the paper transport area.

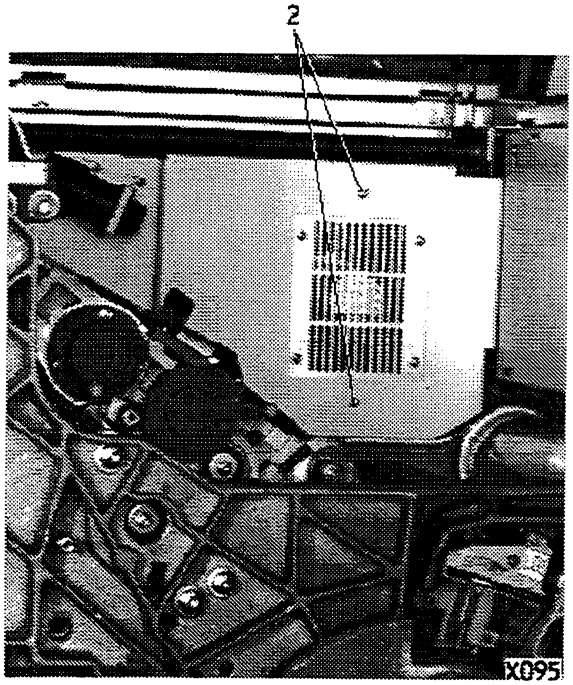


Figure 2-225. Power Supply SV4/E25 Removal and Replacement (2)

h. Slide the power supply off the mounting screws and remove it.

i. Install a replacement power supply in reverse removal order.

Note There are no adjustable voltages in the power supply.

3

Troubleshooting

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Error Codes

Master Module Errors

Error Byte 1

Bit	Signal	Description	Status
1-0	SM_1_NOT_CON	Submodule 1 not connected	A0.00
2-1	SM_2_NOT_CON	Submodule 2 not connected	A0.01
4-2	SM_3_NOT_CON	Submodule 3 not connected	A0.02
8-3	SM_4_NOT_CON	Submodule 4 not connected	A0.03
1-4	ROT_FIELD	Power connection error	A1.00
2-5	DEV_POWER_OFF	Device power switched off	A6.00
4-6	COMMUNICATION_ERR_DE	Communication error MM-SM	A3.00
8-7	Reserved		

Error Byte 2

Bit	Signal	Description	Status
1-0	LIFEEND_DEVELOPER	Developer must be changed	10.00
2-1	LIFEEND_CLEANINGBRUSH	Cleaning brush must be changed	03.00
4-2	LIFEEND_ANTISTATIC_STRIP	Antistatic strip must be changed	0B.00
8-3	LIFEEND_FILTERS	Filter set must be changed	0D.00
1-4	LIFEEND_COROTRONWIRES	Corotron wires must be changed	12.00
2-5	Reserved		
4-6	Reserved		
8-7	Reserved		

Error Byte 3

Bit	Signal	Description	Status
1-0	CHANGE_DEVELOPER	Change developer	W.00
2-1	CHANGE_CLEANINGBRUSH	Change cleaning brush	W.01
4-2	CHANGE_ANTISTATICS_TRIP	Change antistatic strip	W.02
8-3	CHANGE_FILTERSET	Change filter set	W.03
1-4	CHANGE_COROTRONWIRES	Change corotron wires	W.04
2-5	SPECIAL_FUSING	Low fusing temperature selected	W.0C
4-6	BURSTER_INOP	Error on additional device	42.00
8-7	BURSTER_RESTART	Hard error on additional device	45.00

Paper Transport Module Errors

Error Byte 4

Bit	Signal	Description	Status
1-0	PAPMOTION	Paper transport error	16.00
2-1	NOPAPRUN	No 1/6 inch transitions	35.00
4-2	NO_STEPCLOCK	No step clock transitions	35.01
8-3	TSTART/TSTOP_ERR	No start or stop after TRRUN	35.04
1-4	FORMFEED_ERR	Formfeed does not match form	35.02
2-5	Reserved		
4-6	NO_40V	No 40V supply on paper transport	A6.01
8-7	D93_DEF	PCA D93 defective	A0.04

Error Byte 5

Bit	Signal	Description	Status
1-0	FLAPS_OPEN	Flaps open	62.00
2-1	SWIVON_ERR	Swivel on not left or reached	64.00
4-2	SWIVOFF_ERR	Swivel off not left or reached	64.01
8-3	CALIBROFF_ERR	Calibrator in OFF position	11.00
1-4	MOTCLKMAX_WARN	Motclk sensor current at max.	W.0D
2-5	MOTCLK_ERR	Motclk sensor defect	91.00
4-6	CALIBROFF_WARN	Calibrator OFF warning	W.0B
8-7	Reserved		

Error Byte 6

Bit	Signal	Description	Status
1-0	TRANSCLEAN_TIMEOUT	Transfer corotron cleaning timeout	90.00
2-1	TRANSCOR_SENS	Both sensors active	90.01
4-2	TRANSOUT_ERR	No pulses while moving out	90.02
8-3	TRANSIN_ERR	No pulses while moving in	90.03
1-4	TRANSPULS_ERR	Transout sensor defect	90.04
2-5	NO_24V	No 24V supply on paper transport	A6.02
4-6	Reserved		
8-7	Reserved		

Main Module Errors

Error Byte 7

Bit	Signal	Description	Status
1-0	THLEDFAN	Over-temperature LED ventilator	6A.00
2-1	TONERFEDDSYSTEM_OUT	Toner feed system not installed	19.00
4-2	THDEVSTAT	Over-temperature developer station motor	6A.01
8-3	THAIRPRESS	Motor overtemperature blower	6A.02
1-4	THFCDMOT	Over-temperature of photoconductor motor	6A.03
2-5	THBRUSHMOT		6A.04
4-6	Reserved		
8-7	DRUMCOVER	Drum cover open	61.00

Error Byte 8

Bit	Signal	Description	Status
1-0	PAPER_LEVER	Paper insertion lever down	43.01
2-1	Reserved		
4-2	FILTER_FULL_ERR	Fine filter full error	0E.00
8-3	TONER_FULL_ERR	Waste container full error	05.00
1-4	VALVE_OPEN	Valve in under-pressure system open	15.00
2-5	DEVSTAT	Developer station in change position	0C.00
4-6	TONER_EMPTY_WARN	Toner empty warning	W.06
8-7	FUMES	Toner in exhausted air	6E.00

Error Byte 9

Bit	Signal	Description	Status
1-0	CHARGEOV	Charge corotron over-voltage	96.00
2-1	CHARGEUV	Charge corotron under-voltage	96.01
4-2	BIASOV	Bias over-voltage	93.00
8-3	BIASUV	Bias under-voltage	93.01
1-4	TRANSOV	Transfer corotron over-voltage	94.00
2-5	TRANSUV	Transfer corotron under-voltage	94.01
4-6	ACOV	AC corotron over-voltage	95.00
8-7	ACUV	AC corotron under-voltage	95.01

Error Byte 10

Bit	Signal	Description	Status
1-0	Reserved		
2-1	Reserved		
4-2	CLEANPOS	Cleaning corotron not locked	40.00
8-3	VACUUM_SYS_DEF	Vacuum system open or defect	63.01
1-4	Reserved		
2-5	Reserved		
4-6	CHARGEPOS	Charge corotron not locked	41.00
8-7	NO_TONERBOTTLE_WARN	Tonerbottle not installed	W.05

Error Byte 11

Bit	Signal	Description	Status
1-0	Reserved		
2-1	FRONTDOOR_OPEN	Front door open	65.00
4-2	Reserved		
8-3	TONER_EMPTY_ERR	Toner empty error	04.00
1-4	REMOVE_DEV_SEQUENCE	Remove developer sequence incomplete	10.01
2-5	TONER_FULL_WARN	Waste container full warning	W.07
4-6	INTPAPEND	End of paper (internal)	01.00
8-7	EXTRPAPEND	End of paper (external)	01.01

Error Byte 12

Bit	Signal	Description	Status
1-0	NO_TONERMARK	No tonermark detected	6D.00
2-1	NO_CENTRALCLOCK	No central clock detected	69.00
4-2	PRESSURE_ERR	Low pressure system defect	63.00
8-3	FILTER_FULL_WARN	Fine filter full warning	W.08
1-4	CHARGECL_TIMEOUT	Charge corotron cleaning too long	9C.00
2-5	ACCL_TIMEOUT	AC-corotron cleaning too long	9D.00
4-6	VALVE_CLOSED	Vacuum valve closed	17.00
8-7	DEV_STAT_CLOSED	Developer station closed	18.00

Error Byte 13

Bit	Signal	Description	Status
1-0	D_596_DEV	Hardware error D596	A0.07
2-1	CHARGECOR_SENS	Both sensors active	9C.01
4-2	RESTPOT_TOO_HIGH	Rest potential too high	9B.03
8-3	CHARGEPOS_ERR	Inpos or outpos not left	9C.02
1-4	TM_SCONTR_ERR	Dark value of tonermark too high	99.00
2-5	CLEANCOR_SENS	Both sensors active	9D.01
4-6	CHARGE_CYCL_TIMEOUT	Charge regulation timeout	9B.04
8-7	CLEANPOS_ERR	In/Out position not left	9D.02

Error Byte 14

Bit	Signal	Description	Status
1-0	CENTRALCLOCK	Improper central clock	69.01
2-1	CHARGE_SENS	Charge sensor defect	9B.00
4-2	CHARGEVOLT_MIN	Drum charge too low	9B.01
8-3	CHARGEVOLT_MAX	Drum charge too high	9B.02
1-4	NO_TONER_BOTTLE_ERR	Tonerbottle not installed	08.00
2-5	TM_CURR_MAX	Tonermark sensor current too high	99.01
4-6	TONERFEED_ERR	Toner conveyor system defect	67.00
8-7	TONERDENS	Tonermarks too light	14.00

Error Byte 15

Bit	Signal	Description	Status
1-0	NOREDLIGHT	Red light foil not shining	97.00
2-1	NOGREENLIGHT	Green light foil not shining	97.01
4-2	BACKGROUND_ERR	Background too high	9A.00
8-3	GRENNLIGHTON	Green light foil inadmissible	97.03
1-4	REDLIGHTON	Red light foil inadmissible	97.04
2-5	LIFEENDGREEN	End of life	W.0E
4-6	LIFEENDRED	End of life	W.0F
8-7	ADJ_CHARGE_SENS_WARN	Adjust charge sensor	W.10

Fusing Module (Stacker) Errors

Error Byte 16

Bit	Signal	Description	Status
1-0	RIGHT_PAD_SENS	Right paddle sensor defect	7D.00
2-1	LEFT_PAD_SENS	Left paddle sensor defect	7D.01
4-2	STACKER_FULL_SENS	Stacker full sensor defect	7D.02
8-3	STACKER_END_SENS	Stacker end sensor defect	7D.03
1-4	STACKER_LOW_SENS	Stacker low sensor defect	7D.04
2-5	STACKER_POS_ERR	Stacker position error	7D.05
4-6	STACKLIFT_POS_SENS	Stacker lift position sensor defect	7D.06
8-7	PAPER_EDGE_SENS	Paper edge sensor defect	7D.07

Error Byte 17

Bit	Signal	Description	Status
1-0	SWING_PO_SERR	No pulses of swing out motor	7D.08
2-1	STACKER_IN_SENS	Stacker in position not found	7D.09
4-2	STACKER_OUT_SENS	Stacker out position not found	7D.0A
8-3	STACKER_FULL	Stacker is full	02.00
1-4	FOLD_ERROR	Improper folding of forms	32.00
2-5	LAST_STACK_INS	Last stack is still inside	2D.00
4-6	CLEAN_PAP_EDGE_SENS	Paper edge sensor should be cleaned	2E.00
8-7	LAST_STACK_OUT	Last stack outside on platform	2C.00

Fusing Module Errors

Error Byte 18

Bit	Signal	Description	Status
1-0	PAPTENS_SENS	Paper tensionsensor defect	23.00
2-1	PAPPOSLOW_ERR	Tension wing on low position	52.00
4-2	PAPPOS_HIGH_ERR	Tension wing on high position	52.01
8-3	FIX_JAM_ERR	Paper jam in fuser station	25.00
1-4	FIXPRESS_ON_ERR	Swivel on error of pressure roller	22.00
2-5	FIXPRESS_OFF_ERR	Swivel off error of pressure roller	22.01
4-6	FIXPRESS_SENS	Fixpress sensor defect	23.01
8-7	FIX_SADDLE_ON_ERR	Swivel on error of fusing saddle	24.00

Error Byte 19

Bit	Signal	Description	Status
1-0	FIX_SADDLE_OFF_ERR	Swivel off error of fusing saddle	24.01
2-1	FIX_SADDLE_SENS	Fixsaddle sensor defect	23.02
4-2	FELT_END_ERR	Felt end	09.00
8-3	OIL_EMPTY_ERR	Oil supply empty	0F.00
1-4	PAPBRAKE_ERR	Paperbrake not adjustable	23.03
2-5	PAPBRAKE_REF_ERR	Reference of paperbrake not found	23.04
4-6	OIL_EMPTY_WARN	Oil supply empty warning	W.09
8-7	FELT_END_WARN	Felt end warning	W.0A

Error Byte 20

Bit	Signal	Description	Status
1-0	TEMP_MIN_LIM_FRONT	Fuser oil temperature front too low	20.00
2-1	TEMP_MIN_LIM_BACK	Fuser oil temperature back too low	20.01
4-2	THTESNION_DRIVE	Over-temperature tension drive	6A.05
8-3	THSTACKER_DRIVE	Over-temperature stacker drive	6A.06
1-4	TH_STACKER_SWING	Over-temperature stacker swing	6A.07
2-5	FELT_DRIVE_ERROR	Felt drive defect	23.07
4-6	LIFT_DRIVE_ERROR	Lift drive defect	23.08
8-7	Reserved		

Error Byte 21

Bit	Signal	Description	Status
1-0	TEMP_FRONT_SENS	Front temperature sensor defect	20.08
2-1	TEMP_REAR_SENS	Rear temperature sensor defect	20.09
4-2	FIXOVERTEMP_FRONT	Fuser roll temperature front too high	20.0A
8-3	FIXOVERTEMP_BACK	Fuser roll temperature rear too high	20.0B
1-4	HEAT_COVER_OPEN	Front/back heater cover open	27.00
2-5	STACKER_POS_SENS	Stacker position sensor defect	7D.0B
4-6	FELT_UNIT_OFF	Felt unit unlocked	29.00
8-7	EXHAUSTER_OFF	Exhauster unlocked	2A.00

Error Byte 22

Bit	Signal	Description	Status
1-0	ROLLSADDLE_OFF	Roller saddle unlocked	2B.00
2-1	HEATER_DEF	Heater defect	21.00
4-2	D91_DEF	Hardware error ON PCB D91	A0.10
8-3	FHOT_ERR	Over-temperature ON D91	A0.09
1-4	DRIFT_MOT_SENS_DEF	Drift motor sensor defect	28.00
2-5	DRIFT_MOTOR_TIMEOUT	Motor reference check timeout	28.01
4-6	DRIFT_MOTOR_TOO_SLOW	Drift motor too slow	28.02
8-7	PAPER_DRIFT_SENS_ERR	Paper drift sensor defect	28.03

Error Byte 23

Bit	Signal	Description	Status
1-0	Reserved		
2-1	Reserved		
4-2	PAPUNIT_OFF	Paper transport unit unlocked	43.00
8-3	OILBOOST_REF_ERR	Oil boost reference not found	23.05
1-4	SUB_COMMUNICATION_ERR	Subdproc. ignored command	23.06
2-5	THFUSE_DEF	Thermo-fuse blown	2F.00
4-6	STACKER_SWING_DEF	Stacker swing at end position	26.00
8-7	Reserved		

Print Head Module Errors

Error Byte 24

Bit	Signal	Description	Status
1-0	FIRMWARE_ERR	Firmware parameter error	76.13
2-1	PSLOGON_ERR	Logic power does not switch ON	78.02
4-2	PSLOGOFF_ERR	Logic power does not switch OFF	78.03
8-3	PSDRVON_ERR	Driver power does not switch ON	78.04
1-4	PSDRVOFF_ERR	Driver power does not switch OFF	78.05
2-5	A/D_COV_ERR	A/D converter error	76.09
4-6	CARRIAGE_ERR	Carriage position error	76.01
8-7	NO_LED	No LED lights for position indication	76.19

Error Byte 25

Bit	Signal	Description	Status
1-0	THRESHOLD_ERR	Threshold bef. or beh. first 2 chips	76.0A
2-1	APPROX_ERR	Approximation not possible	76.18
4-2	Reserved		
8-3	SOFTWARE_RUNTIME_ERR	Software run-time too long	76.0C
1-4	PS_ERR	Power supply failed	78.00
2-5	Reserved		
4-6	LED_ARRAY_ERR	Fatal error of LED array	76.1A
8-7	SENS_OVERTEMP	Over-temperature at sensor 1, 2, or 3	7C.00

Error Byte 26

Bit	Signal	Description	Status
1-0	LEDTEMP LED	Temperature out of range	7C.03
2-1	SYNC_ERR	Synchroniziation error	76.0D
4-2	DATATRANSFER_ERR	Data transfer while prohibited	79.05
8-3	TRRUN_ERR	Transrun too early	79.06
1-4	Reserved		
2-5	CYCLE_CLOCK_ERR	Cycle clock too fast/slow	7A.00
4-6	PAGE_TIMING_ERR	No stop command from master	79.03
8-7	PHASE_MISMATCH	Wrong phase from master module	79.07

Error Byte 27

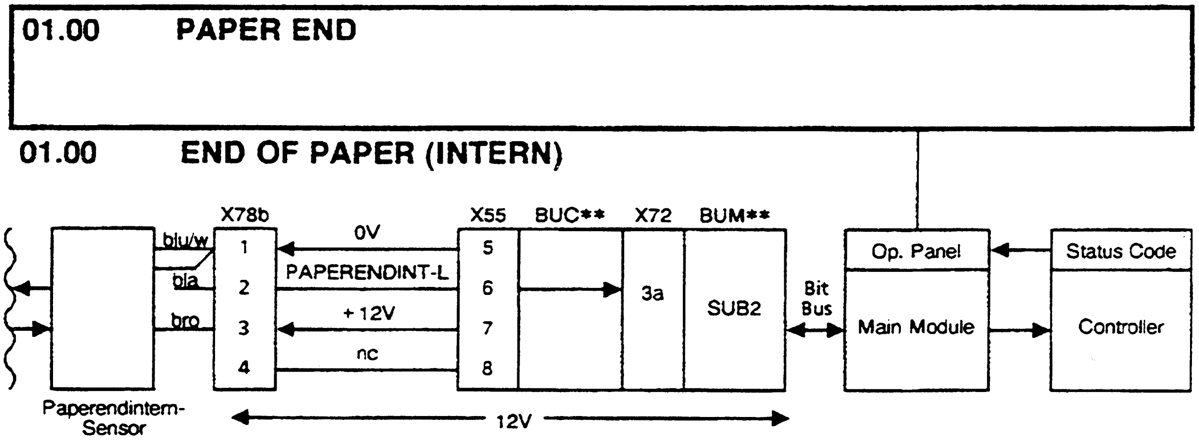
Bit	Signal	Description	Status
1-0	LED_ADJUST	LED adjust in progress > 5 min.	W.11
2-1	LEDS_DEFECT	One or more LEDs defective	W.12
4-2	CARRIAGE_SPEED	Carriage too slow or too fast	76.0E
8-3	MAINSFREQUENCY	Improper mains frequency	76.0F
1-4	OUTSIDE_LIGHT	Outside light detected	76.10
2-5	TRANSLATOR_TIMEOUT	Translator inactive after 100 micro-seconds	79.02
4-6	DMA_ERR	DMA error	76.12
8-7	LOAD_CYCLE_ERR	Error during data load cycle	76.11

Reserved

Error Byte 28

Bit	Signal	Description	Status
1-0	LOOP TO SHORT	Twin loop error	55.00
2-1	LOOP TOO LONG	Twin loop error	55.01
4-2	SYNCHRON ERROR	Synchronization lost	56.00
8-3	NO SYNCH MARC	No synchronization mark	57.00
1-4	PAP. LENGTH MISMATCH	Paper length mismatch	58.00
2-5	HARD ERROR PRINTER 1	Hard error printer 1	59.00
4-6	HARD ERROR PRINTER 2	Hard error printer 2	5A.00
8-7	Reserved		

01.00 Paper End: End of Paper (Intern)


01.00 PAPER END
01.00 END OF PAPER (INTERN)
X78b
X55
BUC**
X72
BUM**
blu/w
bla
bro
1
2
3
4
0V
PAPERENDINT-L
+12V
nc
5
6
7
8
3a
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Paperendintern-Sensor
12V

X78b	Paper Input Tray
X55	Connector PCB SUB2 2nd connector from above 14 pins 1 = left lower side
X72	Connector Processor PCB SUB2 lateral connector left lower side 1a = left upper side

Figure 3-1. 01.00 Paper End: End of Paper (Intern)

Error Byte: 11/40

Paper End in Paper Input Tray

The status message `01.00 END OF PAPER (INTERN)` is displayed when the light barrier in the paper input tray detects the end of the paper path. The light barrier reports the paper end with the signal PAPERENDINT to submodule 2.

- The printer stops with correct forms position if automatic eject has not been set under 5.14.
- If automatic eject is set, the printer starts with eject until the residual paper web is fused and lies in the stacker. The stacker upper part moves upward into the stacker end position for paper removal.

Paper between sensor and reflector:

- Red LED at sensor lights up
- Signal PAPERENDINT-L = 12V

No paper between sensor and reflector:

- Red LED at sensor does not light up
- Signal PAPERENDINT-L = 0V

Plug X78b

blu/w 1	bla 2
bro 3	nc 4

If filing perforation or transparent areas in the paper web cause the unjustified error message `PAPER END`, the sensor position may be easily changed by hand.

The sensitivity of the sensor can be adjusted with the potentiometer at the sensor.

Possible Error Causes

- Filing perforation in paper path
- Sensor or reflector dirty
- Sensor defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** defective
- Connector PCB BUC** defective

01.01 Paper End: End of Paper (Extern)

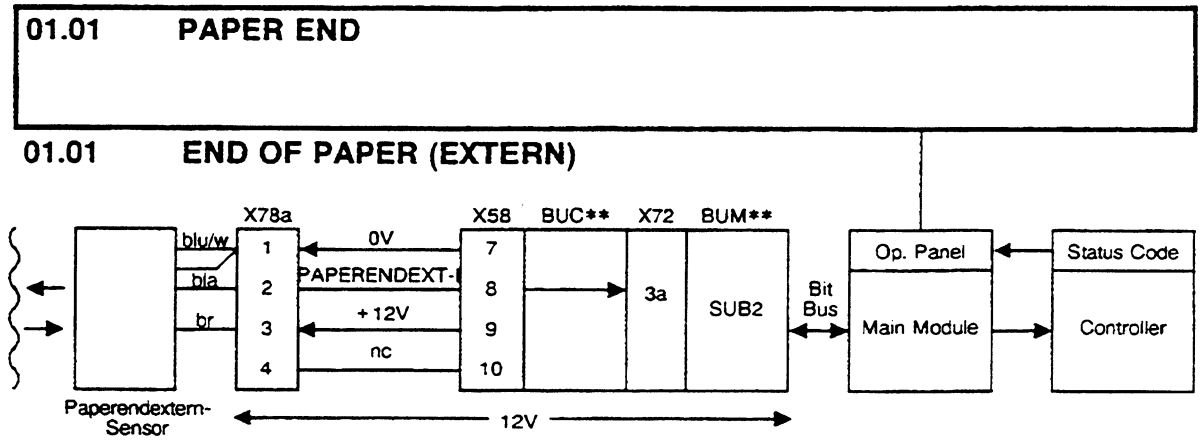

01.01 PAPER END
01.01 END OF PAPER (EXTERN)
X78a
X58
BUC**
X72
BUM**
blu/w
bla
br
1
2
3
4
0V
PAPERENDEXT-L
+12V
nc
7
8
9
10
3a
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Paperendextern-Sensor
12V

Figure 3-2. 01.01 Paper End: End of Paper (Extern)

Error Byte: 11/80

Paper End in External Paper Feed

The status message `01.01 END OF PAPER (EXTERN)` is displayed when the light barrier in the paper input tray detects the end of the paper path. The light barrier sends the paper end message with the signal PAPERENDEXT to submodule 2.

- The printer stops with correct forms position if automatic eject has not been set under 5.14.
- If automatic eject is set, the printer starts with eject until the residual paper web is fused and lies in the stacker. The stacker upper part moves upward into the stacker end position for paper removal.

Paper between sensor and reflector:

- Red LED at sensor lights up
- Signal PAPERENDEXT-L = 12V

No paper between sensor and reflector:

- Red LED at sensor does not light up
- Signal PAPERENDEXT-L = 0V

Plug X78a

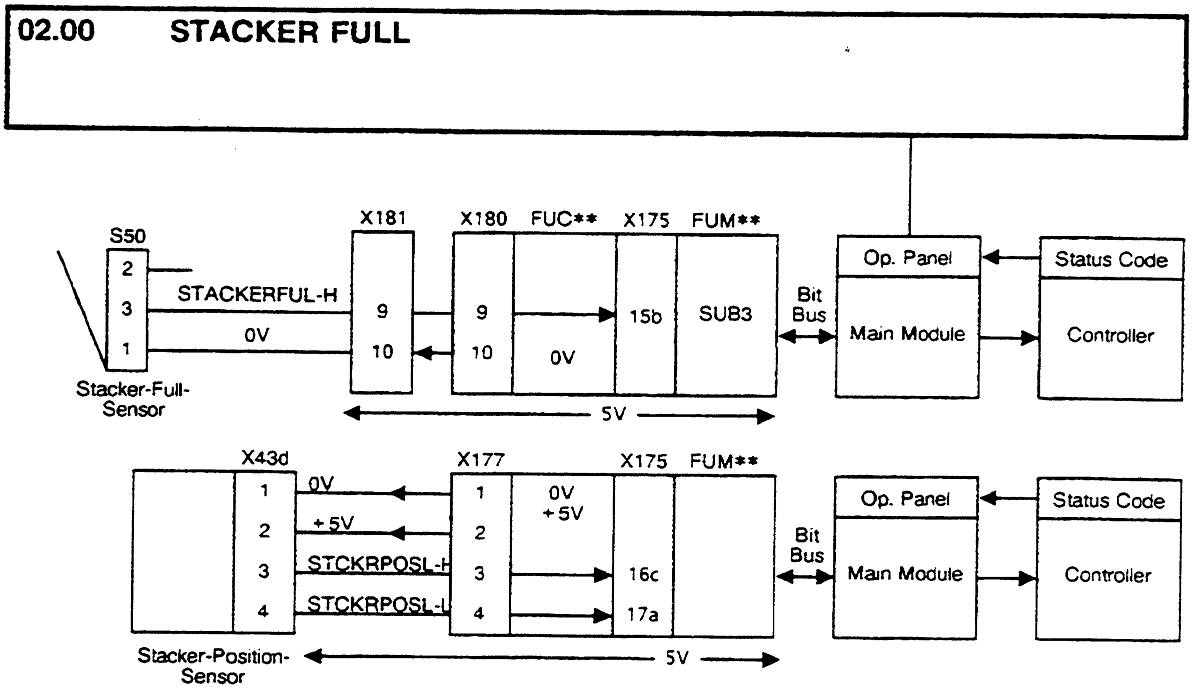
blu/w 1	bla 2
br 3	nc 4

Sensor sensitivity can be adjusted with the potentiometer at the sensor.

Possible Error Causes

- Filing perforation in paper path
- Sensor or reflector dirty
- Sensor defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** defective
- Connector PCB BUC** defective

02.00 Stacker Full



02.00 STACKER FULL
S50
2
3
1
STACKERFUL-H
0V
Stacker-Full-Sensor
X181
9
10
X180
9
10
FUC**
0V
X175
15b
FUM**
SUB3
5V
Bit Bus
Op. Panel
Main Module
Status Code
Controller
X43d
1
2
3
4
0V
+5V
STCKRPOSL-H
STCKRPOSL-L
Stacker-Position-Sensor
X177
1
2
3
4
0V
+5V
X175
16c
17a
FUM**
5V
Bit Bus
Op. Panel
Main Module
Status Code
Controller

Figure 3-3. 02.00 Stacker Full

Error Byte: 17/08

Stacker Full Position of Stacker Upper Section is Detected

The status message 02.00 STACKER FULL is displayed when the stacker has reached the adjusted stacker height (menu 5.0) or when the stacker-full-position has been reached (= maximum stacking height microswitch S50) during Print or Eject. The stacker positions between stacker-low and stacker-full are read by the stacker pos sensor. The printer stops with correct forms position and the stacker automatically moves up to stacker-end-position for paper removal. A restart is only possible if the stacker is triggered downward by the STACKER DOWN key on the stacker operator panel.

Stacker-full-position not reached	⇒ switch S50 actuated
	⇒ signal STACKERFUL-H = 0V
Stacker-full-position reached	⇒ switch S50 not actuated
	⇒ signal STACKERFUL-H = +5V

Possible Error Causes

- Microswitch defective, misadjusted, or connected incorrectly (adjustment error)
- Line error (short-circuit, line breakage, contact error at plug)
- Controller PCB FUM** defective
- Connector PCB FUC** defective
- Stacker-pos-sensor defective or misadjusted

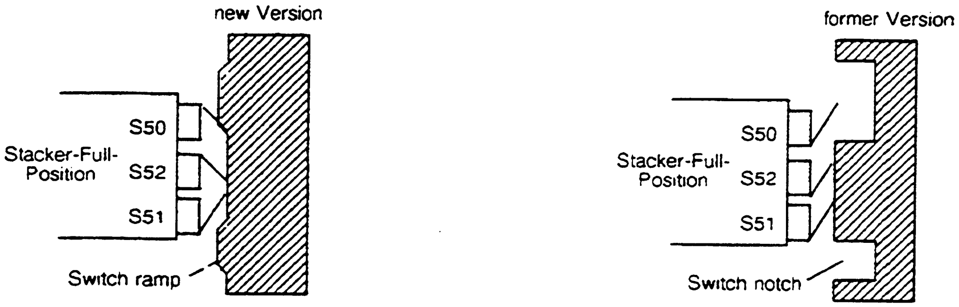

new Version
S50
Stacker-Full-Position
S52
S51
Switch ramp
former Version
S50
Stacker-Full-Position
S52
S51
Switch notch

Figure 3-4. Stacker-Full Positions: New Version and Former Version

03.00 Change Cleaning Brush

03.00 CHANGE CLEANING BRUSH	= Status Message
CLEANING BRUSH	= Warning (W.01)

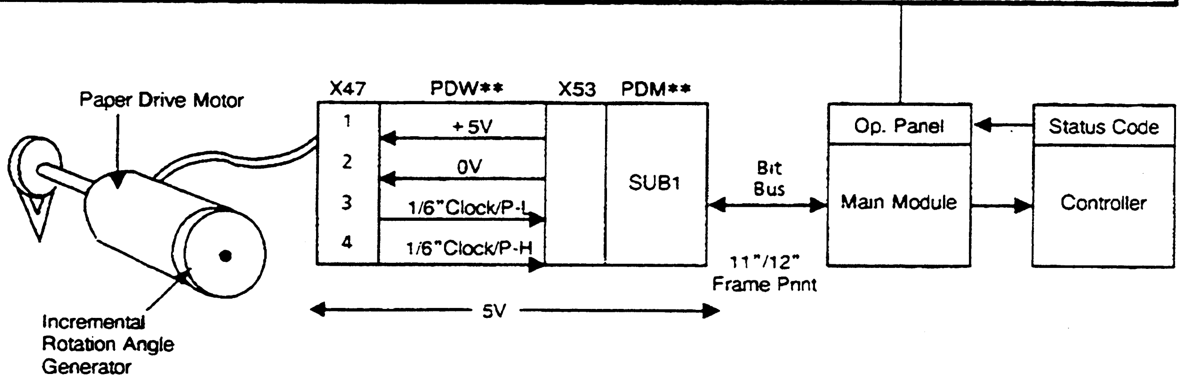

Paper Drive Motor
X47
PDW**
X53
PDM**
1
2
3
4
+5V
0V
1/6"Clock/P-L
1/6"Clock/P-H
SUB1
Bit Bus
11"/12" Frame Print
5V
Op. Panel
Main Module
Status Code
Controller
Incremental Rotation Angle Generator

Figure 3-5. 03.00 Change Cleaning Brush

Error Byte: 02/02

Replace Cleaning Brush

The cleaning brush must be replaced every 550,000 12-inch pages (550,000 12-inch pages = 600,000 11-inch pages). Submodule 1 sends a frame to the main module after every printed 12-inch page (72-1/6 inch clocks). The main module reduces the count of the counter for the cleaning brush after every 100 pages. The current count of the counter for the cleaning brush can be inquired in the menu under 2.0.

When the counter arrives at 50,000 pages, the warning `(WO.1) CLEANING BRUSH` is displayed in the second line in the operator panel. Now the operator can replace the cleaning brush; for example, after the next paper end and acknowledge 3.3 at the operator panel. After the acknowledgement, the counter is reset to 550,000 12-inch pages.

If the operator does not replace the cleaning brush after the warning is displayed and the counter arrives at count 0, the printer stops and displays the status message `03.00 CHANGE CLEANING BRUSH`. A restart is only possible when the cleaning brush has been replaced and 3.3. acknowledged in the operator panel menu.

Additional information about the function of the counter in the main module:

- 2 memories of the main module are loaded with the hex values 15 and 7C, which are reduced by 1 after every 100 printed 12-inch pages.

  15 7C = 5,500 decimal
  5,500 x 100 = 550,000 decimal

- When the counter reaches the count 01 F4, the warning is displayed on the operator panel.

  01 F4 = 500 decimal
  500 x 100 = 50,000 decimal

When the printer is switched off, the current counts of the counter are entered into the NV-RAM. After printer power-on, the memories are loaded again with the values from the NV-RAM.

04.00 Toner Empty

04.00 TONER EMPTY	= Status Message
TONER EMPTY	= Warning (W.06)

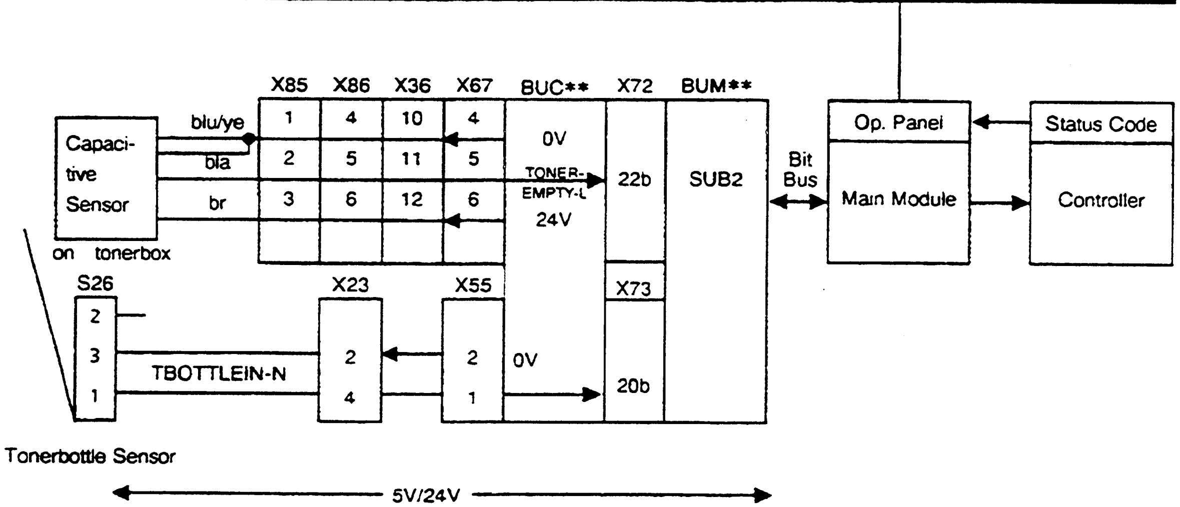

X85
X86
X36
X67
BUC**
X72
BUM**
Capacitive Sensor
on tonerbox
blu/ye
bla
br
1
2
3
4
5
6
10
11
12
4
5
6
0V
TONER-EMPTY-L
24V
22b
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
S26
2
3
1
TBOTTLEIN-N
X23
2
4
X55
2
1
0V
X73
20b
Tonerbottle Sensor
5V/24V

Figure 3-6. 04.00 Toner Empty

Error Byte: 11/10

No Toner in Toner Feed System. Insert Full Toner Bottle

The capacitive sensor in the toner box on the developer station recognizes that the toner box is full. If a toner empty is detected, the toner feed cycles are started until toner empty is again inactive. If toner empty is not reset within 5 minutes, the warning (`W.06`) `TONER EMPTY` is displayed.

- If toner empty is not reset within the next 1000 pages, the status display `04.00 TONER EMPTY` is set and the printer stops until a new toner bottle is inserted (tonerbottle sensor S26).
- During the 1000 sheets after the toner empty warning, the toner

  bottle can be exchanged while the printer is active, if the exchange does not last longer than 1 minute. If the exchange takes longer than 1 minute, the status display `08.00 TONERBOTTLE NOT INSTALLED` appears. After you insert the new toner bottle, the printer has a maximum

  of 12 minutes to reach the full level in the toner box. If the signal `TONEREMPTY-L` is not reset within 12 minutes after

  you insert the new toner bottle, the display `67.00 TONER TRANSPORT ERROR` is indicated.

During toner feed, a mixture strap moves in the toner box, which would reset the toner empty signal incorrectly. This measurable signal exchange is not active during toner empty recognition.

No toner or mixture strap before sensor	⇒ TONEREMPTY-L = 0 - 1V
Toner or mixture strap before sensor	⇒ TONEREMPTY-L = 24 - 29V
Toner bottle clamp with toner bottle swivelled on	⇒ TBOTTLEIN-N = 0V
Toner bottle clamp with toner bottle swivelled off	⇒ TBOTTLEIN-N = +5V

Possible Error Causes

- Capacitive sensor defective, misadjusted or connected incorrectly
- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** defective
- Connector PCB BUC** defective
- Toner suction pipe clogged
- Suction clock valve defective
- Leaking toner box

05.00 Toner Collector Full

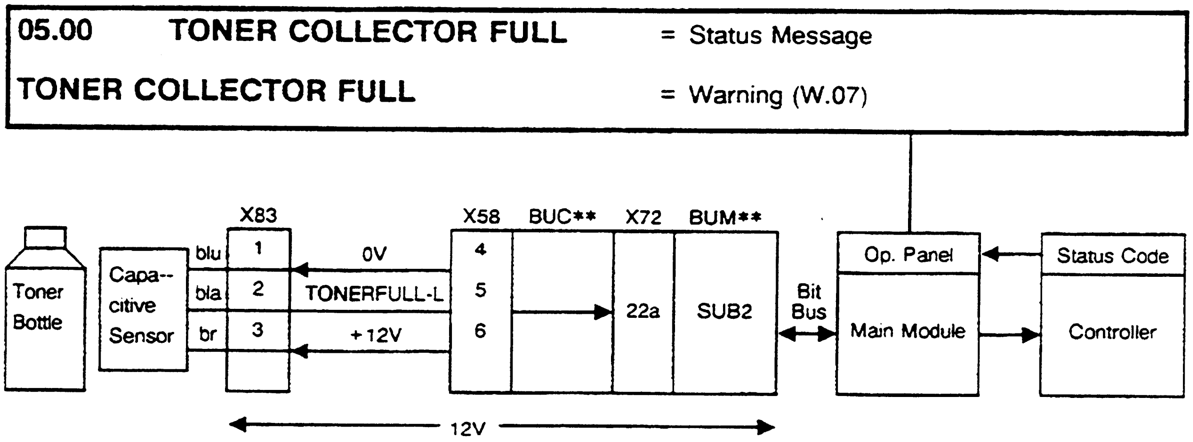

05.00 TONER COLLECTOR FULL = Status Message
TONER COLLECTOR FULL = Warning (W.07)
X83
X58
BUC**
X72
BUM**
Toner Bottle
Capa-- citive Sensor
blu
bla
br
1
2
3
0V
TONERFULL-L
+12V
4
5
6
22a
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
12V

Figure 3-7. 05.00 Toner Collector Full

Error Byte: 08/08

The message `05.00 TONER COLLECTOR FULL` is displayed if the toner bottle in the toner collector box below the cyclone filter is full. A capacitive sensor, which is equipped with a red LED, detects that the toner bottle is full and reports this with the signal TONERFULL-L to submodule 2.

Toner bottle not full	⇒ TONERFULL-H = 10.8 V	red LED lights up
Toner bottle full	⇒ TONERFULL-H = 0.4 V	red LED does not light up

If TONERFULL is detected during printing, at first the warning `(W.07) TONER COLLECTOR FULL` is displayed. The operator has time to prepare an empty toner bottle. If the toner bottle is not exchanged within 3000 12-inch pages, the printer stops with the error message `05.00 TONER COLLECTOR FULL`. Restart is only possible after changing the toner bottle.

When the toner bottle is removed, a metal strap moves in front of the capacitive sensor to prevent a print start. This metal strap is pushed downward again when the new toner bottle is inserted. The sensor can be checked by manually actuating this strap and watching the red LED. The red LED is not directly visible. You can only see the reflection of the light on a metal part behind the sensor. This sensor signal can be adjusted by means of a pot beside the red LED (maintenance routine).

Possible Error Causes

- Toner bottle deformed
- Metal strap before sensor although a bottle is inserted
- Toner adheres to inner side of toner bottle
- Sensor defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** defective
- Connector PCB BUC** defective

08.00 Tonerbottle Not Installed

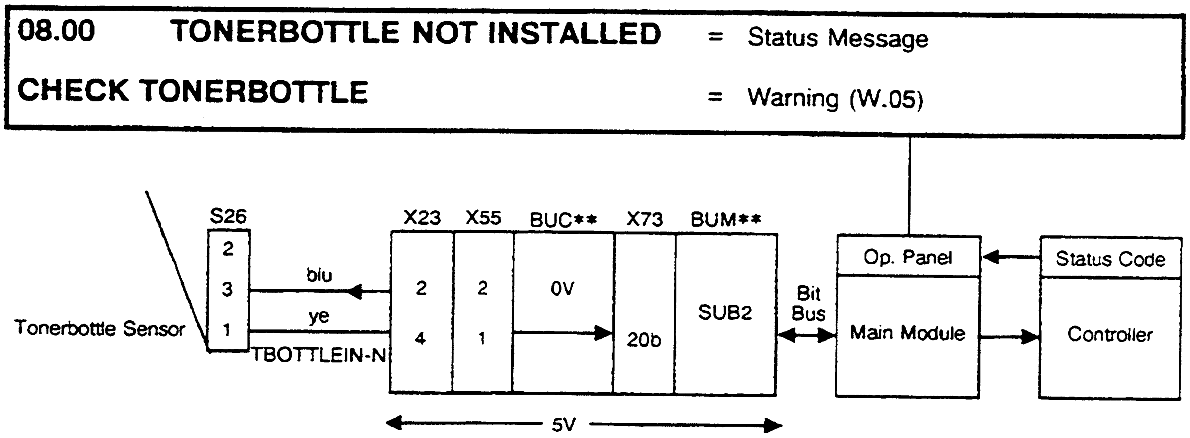

08.00 TONERBOTTLE NOT INSTALLED = Status Message
CHECK TONERBOTTLE = Warning (W.05)
Tonerbottle Sensor
S26
2
3
1
blu
ye
TBOTTLEIN-N
X23
X55
BUC**
X73
BUM**
2
4
2
1
0V
20b
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V

Figure 3-8. 08.00 Tonerbottle Not Installed

Error Byte: 14/10

Toner Bottle Mounting Not Swivelled On or No Toner Bottle

Inserted

Microswitch S26 (relays 1-3) messages the position of the toner bottle with the signal TBOTTLEIN-N to submodule 2.

- During Standby: If the toner bottle is swivelled off, the warning `(W.05) CHECK TONERBOTTLE` is displayed. The printer cannot be started.
- During Printing: If the toner bottle is swivelled off, at first the warning `(W.05) CHECK TONERBOTTLE` is displayed. If the toner bottle is not swivelled on within 1 minute, the status message `08.00 TONERBOTTLE NOT INSTALLED` is displayed and the printer stops.

Toner bottle swivelled on	⇒ switch S26 actuated ⇒ signal TBOTTLEIN-N = 0V
Toner bottle swivelled off	⇒ switch S26 not actuated ⇒ signal TBOTTLEIN-N = 5V

Possible Error Causes

- Microswitch defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** defective
- Connector PCB BUC** defective

09.00 Change Felt

09.00 CHANGE FELT = Status Message

CHANGE FELT = Warning (W.0A)

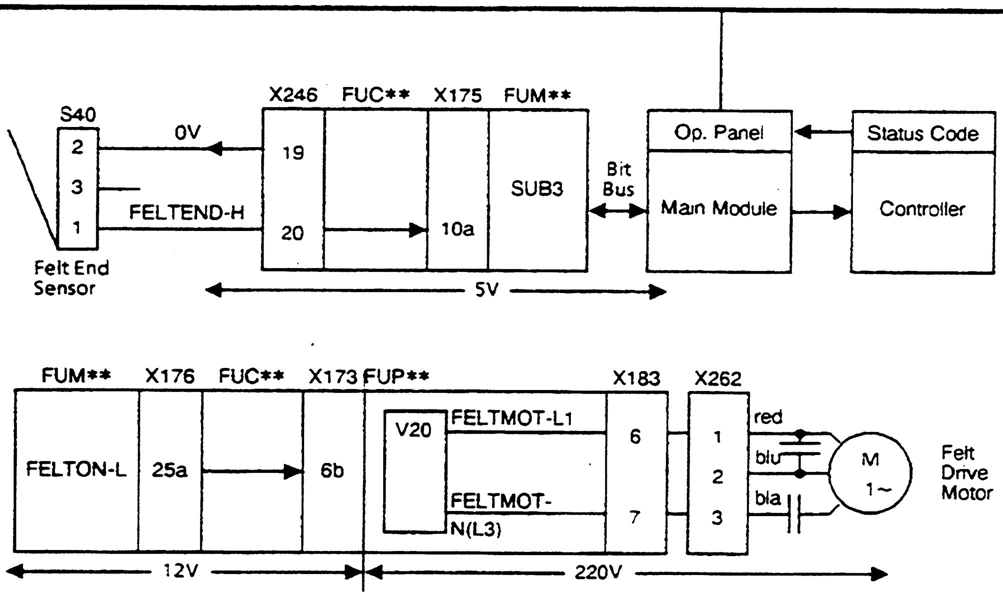

X246
FUC**
X175
FUM**
S40
2
3
1
0V
FELTEND-H
19
20
10a
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Felt End Sensor
5V
FUM**
X176
FUC**
X173
FUP**
X183
X262
FELTON-L
25a
6b
V20
FELTMOT-L1
FELTMOT-N(L3)
6
7
1
2
3
red
blu
bla
M
1~
Felt Drive Motor
12V
220V

Figure 3-9. 09.00 Change Felt

Error Byte:19/04

End of Cleaning Felt Roll Detected; Change Cleaning Felt

If the metal bar fixed to the felt roll end actuates microswitch S40 (relays 1-2) , the warning `CHANGE FELT` is displayed in the second line of the operator panel. The operator has time to prepare a new cleaning felt roll. After the next paper end or a maximum of 3,000 sheets, the status message `09.00 CHANGE FELT` is displayed in the first line of the operator panel and the printer stops. A print or eject restart is only possible when the cleaning felt has been replaced.

The felt drive motor is always activated during printing; during standby, it is activated for 5 seconds and then deactivated for 50 seconds.

Felt end reached	⇒ switch S40 actuated ⇒ signal FELTEND-H = 5V
Felt end not reached	⇒ switch S40 not actuated ⇒ signal FELTEND-H = 0V
FELTON-L = 0V	⇒ motor is activated
FELTON-L = 12V	⇒ motor is not activated

The felt drive motor internal resistance is approximately 22 kΩ.

Possible Error Causes

- Microswitch is not actuated by the metal bar
- Microswitch defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, contact error)
- Controller PCB FUM** defective
- Connector PCB FUC** defective

0A.00 Forms Overlay Missing

0A.00 FORMS OVERLAY MISSING

Figure 3-10. 0A.00 Forms Overlay Missing

Error Byte: Controller Error Message

General

It is possible to flash an electronic overlay into the text. This overlay must be stored on the floppy. The name is `DIAxxxxx.EFO` with `xxxxx` being a number between 00000 and 99999. You can enter this number via the operator panel or load it via the system by issuing the command `LOAD FORMS OVERLAY SEQUENCE` or `COPY CONTROL RECORD`.

Functional Description

If, for example, overlay "10" is loaded, the overlay with the name `DIA00010.EFO` must be stored on the floppy. If not, error `0A.00 FORMS OVERLAY MISSING` is set. In this case, the directory can be displayed via a PC; and you can check whether this file exists.

Note If two disk drives are installed, the specified overlay is searched for on both drives.

0B.00 Change Antistatic Strips

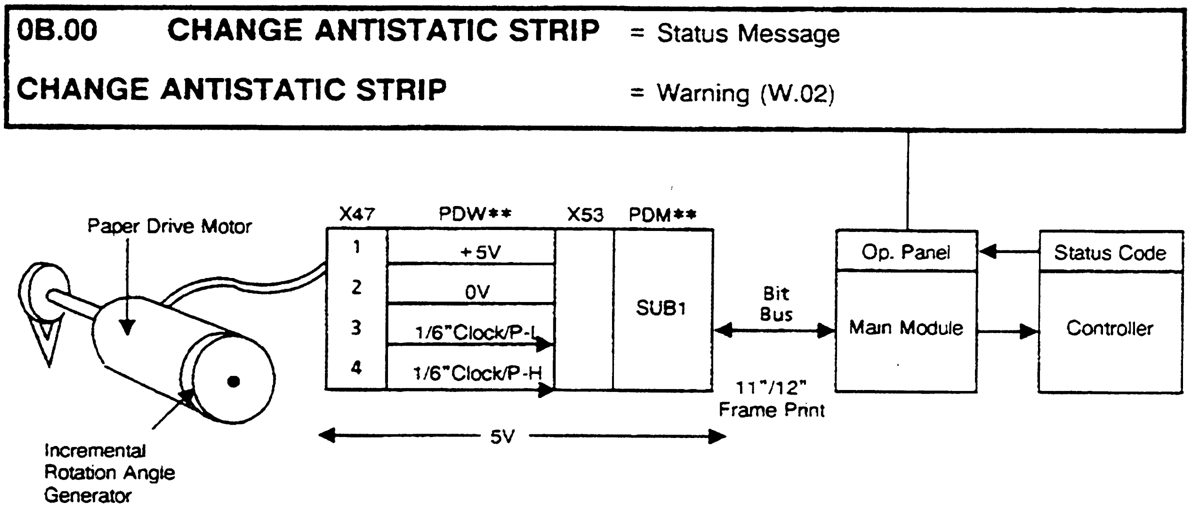

0B.00 CHANGE ANTISTATIC STRIP = Status Message
CHANGE ANTISTATIC STRIP = Warning (W.02)
Paper Drive Motor
Incremental Rotation Angle Generator
X47
PDW**
X53
PDM**
1
2
3
4
+5V
0V
1/6"Clock/P-L
1/6"Clock/P-H
SUB1
5V
Bit Bus
11"/12" Frame Print
Op. Panel
Main Module
Status Code
Controller

Figure 3-11. 0B.00 Change Antistatic Strip

Error Byte: 02/04

Replace Antistatic Strips

The antistatic strips must be replaced every 2,050,000 12-inch pages (2,050,000 12-inch pages = 2,250,000 11-inch pages).

Submodule 1 sends a frame to the main module after every 12 inch page printed (72-1/6 inch clocks). The main module decrements the count of the counter for the antistatic strips after every 100 pages. The current count of the counter for the antistatic strips can be inquired in the menu under 2.0.

When the counter arrives at 50,000 pages, the warning `CHANGE ANTISTATIC STRIP` is displayed on the second line of the operator panel. The operator can now replace the antistatic strips, for example, after the next paper end and 3.1 is acknowledged on the operator panel. After the acknowledgement, the counter is reset to 2,050,000 12-inch pages.

If the operator does not replace the antistatic strips after the warning is displayed, and the counter arrives at count 0, the printer stops with the status message `0B.00 CHANGE ANTISTATIC STRIP`. A restart is only possible if the antistatic strips have been replaced and 3.1 is acknowledged on the operator panel menu.

Additional information about the function of the counter in the main module:

- 2 memories of the main module are loaded with the hex values 50

  and 14, which are reduced by 1 after every 100 printed 12 inch pages.

  5014 = 20,500 decimal
  20500 x 100 = 2,050,000 decimal
- When the counter reaches the count 01 F4, the warning is indicated on the operator panel.

  01 F4 = 500 decimal
  500 x 100 = 50,000 decimal
- When the printer is switched off, the current counts of the counter are entered into the NV-RAM. After printer power-on, the memories are loaded again with the values from the NV-RAM.

0C.00 Developer Station Open

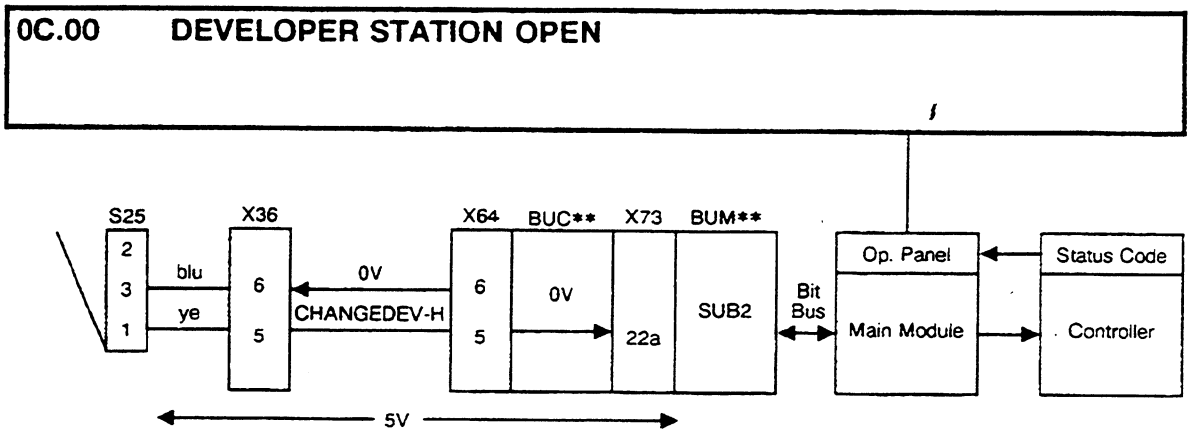

0C.00 DEVELOPER STATION OPEN
S25
2
3
1
blu
ye
X36
6
5
0V
CHANGEDEV-H
X64
6
5
BUC**
0V
X73
22a
BUM**
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V

Figure 3-12. 0C.00 Developer Station Open

Error Byte: 08/20

Developer Station in Position for Change of Developer

In order to empty the developer station, the lever at the developer station must be actuated. This changes the position of the magnetic stator in the uppermost developer roller and opens the magnetic mixture barrier. This lever can only be actuated when the vacuum hose is disconnected from the toner box and plugged into the developer station. The lever is located on the drive side of the device; switch S25 is positioned on the operator panel side of the printer. The position of the lever is monitored with microswitch S25 (relays 1-3). The status message is displayed if the printer is to be started with the lever in position for changing the developer.

Position of lever during printing is vertical:

Microswitch S25 is actuated

S25 Pin 1 = yellow = 0V CHANGEDEV-H

S25 Pin 3 = blue = 0V

Position of lever during changing of developer is horizontal:

Microswitch S25 is not actuated

S25 Pin 1 = yellow = 5V CHANGEDEV-H

S25 Pin 3 = blue = 0V

Possible Error Causes

- Microswitch defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** defective
- Connector PCB BUC** defective

0D.00 Change Filter Set

0D.00 CHANGE FILTERSET = Status Message

CHANGE FILTERSET = Warning (W.03)

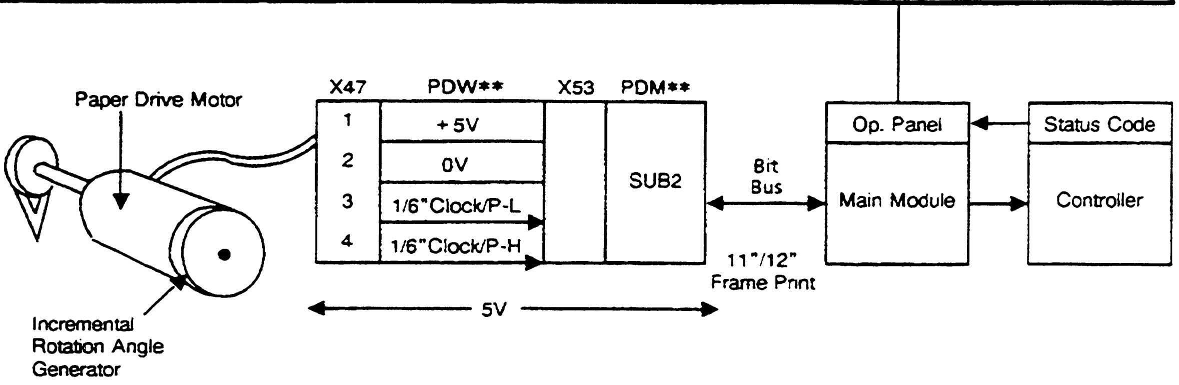

Paper Drive Motor
X47
PDW**
X53
PDM**
1
2
3
4
+5V
0V
1/6"Clock/P-L
1/6"Clock/P-H
SUB2
Bit Bus
11"/12" Frame Print
5V
Op. Panel
Status Code
Main Module
Controller
Incremental Rotation Angle Generator

Figure 3-13. 0D.00 Change Filter Set

Error Byte: 02/08

Replace Filter Set in Fusing Station

The filter set in the fusing station must be replaced every 2,050,000 12-inch pages (2,050,000 12-inch pages = 2,250,000 11-inch pages).

Submodule 1 sends a frame to the main module after every printed 12-inch page (72-1/6 inch clocks). The main module decrements the count of the counter for the filter set after every 100 pages. The current count of the counter for the filter set can be inquired

in the menu under 2.0.

When the counter arrives at 50,000 pages, the warning `CHANGE FILTERSET` is indicated on the second line of the operator panel. Now the operator can replace the filter set, for example, after the next paper end and acknowledge 3.4 on the operator panel. After the acknowledgement, the counter is reset to 2,050,000 12-inch pages.

If the operator does not replace the filter set after the warning display and the counter arrives at count 0, the printer stops with the status message `0D.00 CHANGE FILTERSET`. A restart is only possible when the filter set has been replaced and 3.4 acknowledged in the operator panel menu.

Additional information about the function of the counter in the main module:

- 2 memories of the main module are loaded with the hex values 50 and 14, which are reduced by 1 after every 100 printed 12 inch pages.

  5014 = 20,500 decimal
  10,500 x 100 = 2,050,000 decimal

- When the counter reaches the count 01 F4, the warning is indicated in the operator panel.

  01 F4 = 500 decimal
  500 x 100 = 50,000 decimal

When the printer is switched off, the current counts of the counter are entered into the NV-RAM. After printer power-on, the memories are loaded again with the values from the NV-RAM.

0E.00 Change Finefilter

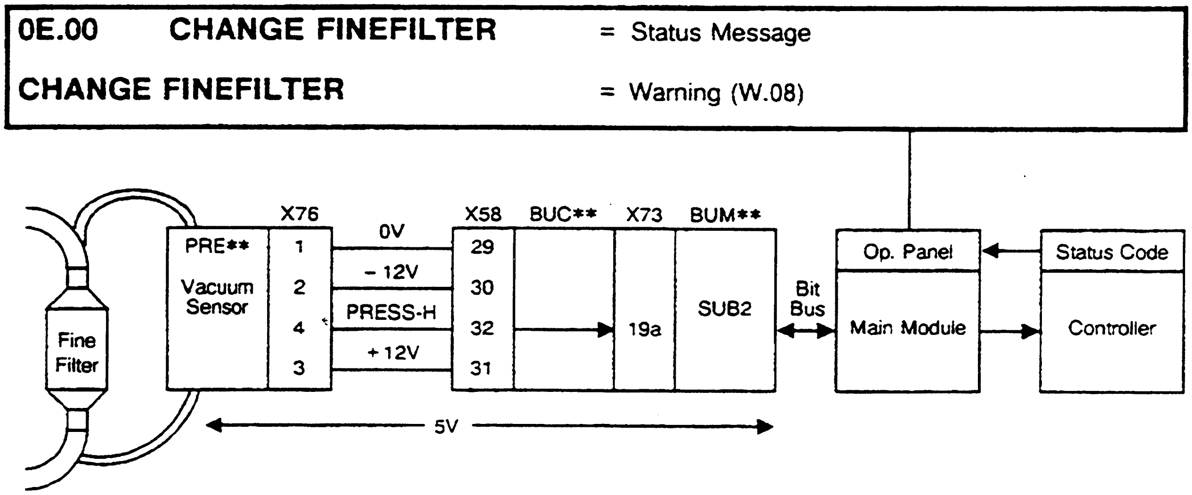

0E.00 CHANGE FINEFILTER = Status Message
CHANGE FINEFILTER = Warning (W.08)
Fine Filter
PRE**
Vacuum Sensor
X76
1
2
4
3
0V
- 12V
PRESS-H
+12V
X58
29
30
32
31
BUC**
X73
19a
BUM**
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V

Figure 3-14. 0E.00 Change Finefilter

Error Byte: 08/04

Fine Filter Has to be Exchanged

The vacuum sensor monitors the vacuum before and after the fine filter. The resulting pressure difference is reported to submodule 2 with the analog signal PRESS-H.

Fine filter empty ⇒ small difference pressure ⇒ PRESS-H = approx. 3V - 6V
Fine filter full ⇒ large difference pressure ⇒ PRESS-H = > 6V ⇒ status message

If the fine filter is becoming full, the warning `CHANGE FINEFILTER` is displayed when a certain pressure value is reached (see Figure 3-15). If the fine filter is not exchanged then, the pressure difference rises until the status message `0E.00 CHANGE FINEFILTER` is displayed. The printer stops with correct forms position.

Possible Error Causes

- Vacuum sensor defective
- Vacuum pipes not connected or defective
- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** defective
- Connector PCB BUC** defective

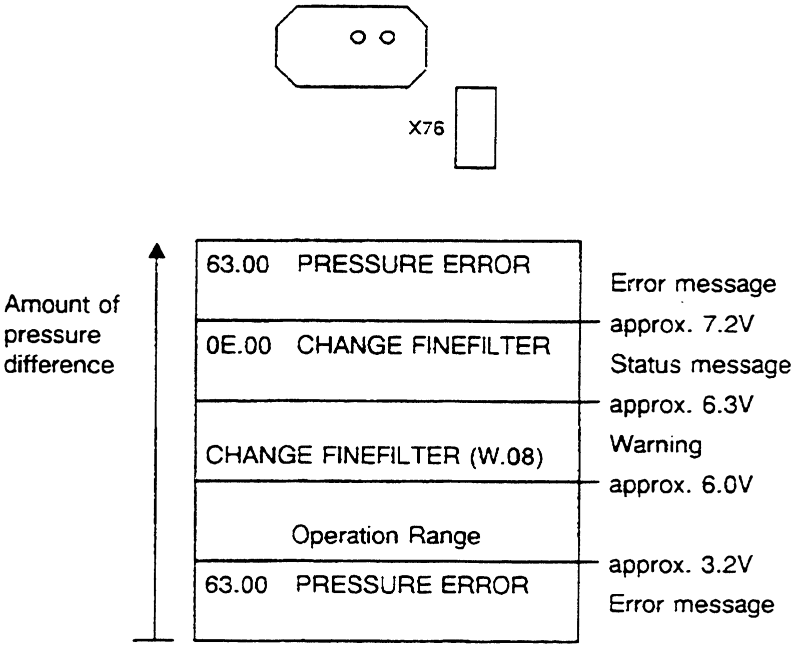

X76
Amount of pressure difference
63.00 PRESSURE ERROR
0E.00 CHANGE FINEFILTER
CHANGE FINEFILTER (W.08)
Operation Range
63.00 PRESSURE ERROR
Error message
approx. 7.2V
Status message
approx. 6.3V
Warning
approx. 6.0V
approx. 3.2V
Error message

Figure 3-15. Finefilter Pressure Values

0F.00 Fuser Oil Empty

0F.00	**FUSER OIL EMPTY**	= Status Message
FUSER OIL EMPTY		= Warning (W.09)

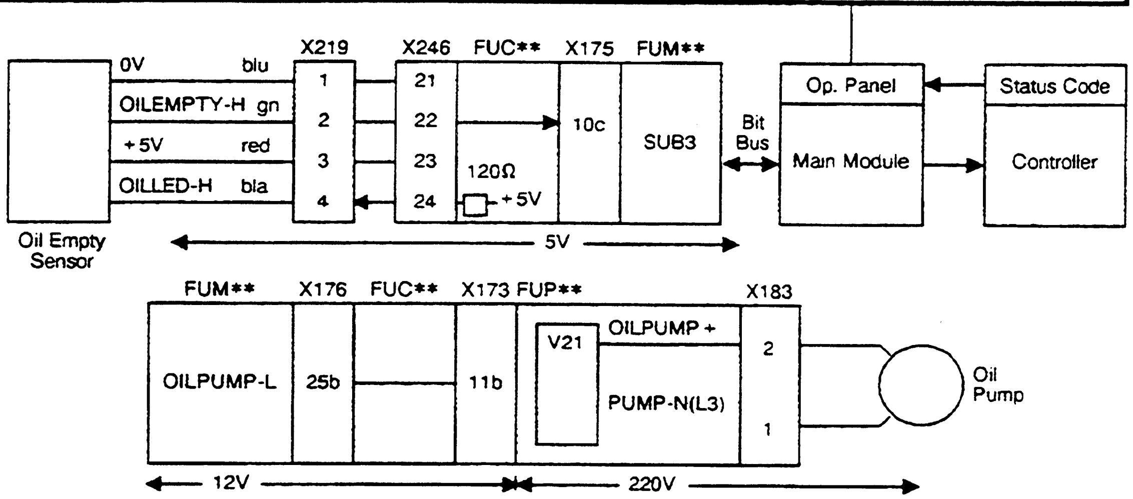

X219
X246
FUC**
X175
FUM**
0V
blu
OILEMPTY-H gn
+5V
red
OILLED-H
bla
1
2
3
4
21
22
23
24
120Ω
+5V
10c
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Oil Empty Sensor
5V
FUM**
X176
FUC**
X173
FUP**
X183
OILPUMP-L
25b
11b
V21
OILPUMP +
PUMP-N(L3)
2
1
Oil Pump
12V
220V

Figure 3-16. 0F.00 Fuser Oil Empty

Error Byte: 19/08

Fuser Oil Container Empty; Insert New Fuser Oil Container

If the oil-empty-sensor (light barrier) generates the signal OILEMPTY-H when the fuser oil container is empty, the warning `FUSER OIL EMPTY` is displayed on the second line of the operator panel. The operator has time to prepare a full fuser oil container. After the next paper end or a maximum of 3,000 sheets, the status message `0F.00 FUSER OIL EMPTY` is displayed on the first line of the operator panel and the printer stops. A print or eject restart is only possible when a full fuser oil container has been inserted.

Oil-Empty detected ⇒ X219	Pin 1 =	0V	Oil-Empty not detected ⇒ X219	Pin 1 =	0V
	Pin 2 =	+5V		Pin 2 =	0V
	Pin 3 =	+5V		Pin 3 =	+5V
	Pin 4 =	1.25V		Pin 4 =	1.25V

Oil pump internal resistance is approximately 400 Ω.

The oil pump is triggered for 2 seconds in specified intervals (see table) corresponding to the width of the inserted paper.

Paper Width	Interval between 2 Pump Strokes
165 mm	21 minutes
250 mm	13.8 minutes
375 mm	9.2 minutes
457 mm	7.5 minutes

The oil pump is activated only with the positive half of the 220V AC voltage, measuring values at connector X183 pin 2 (measured with Digital Multizet):

AC voltage range	approximately 160V
DC voltage range	approximately 50V

Possible Error Causes

- Line error (short circuit, line breakage, or contact error)
- Sensor defective (see description oil-empty-sensor = light barrier)
- Controller PCB FUM** defective
- Connector PCB FUC** defective

10.00 Change Developer

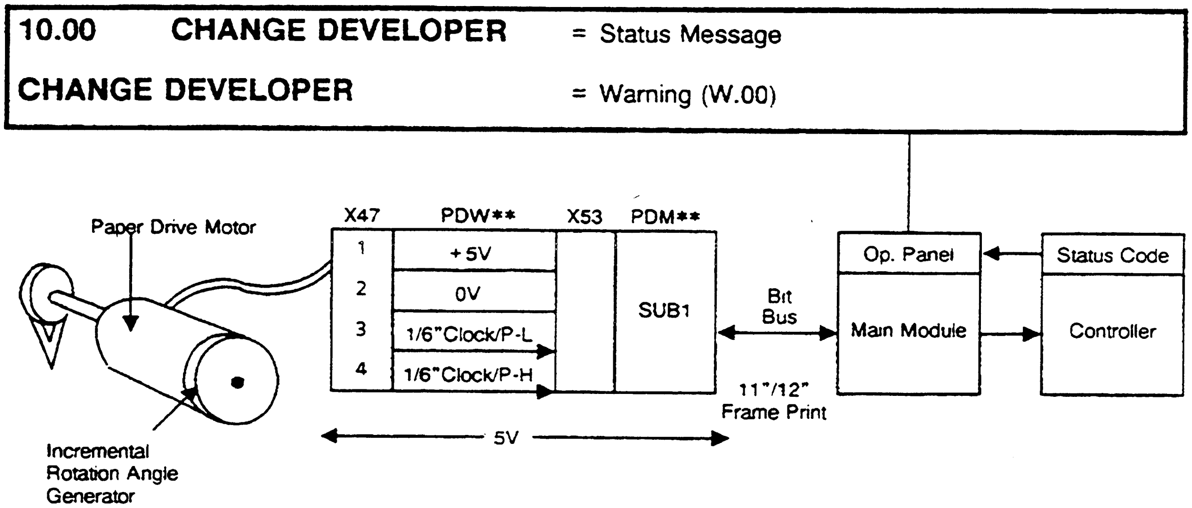

10.00 CHANGE DEVELOPER = Status Message
CHANGE DEVELOPER = Warning (W.00)
Paper Drive Motor
Incremental Rotation Angle Generator
X47
PDW**
X53
PDM**
1
2
3
4
+5V
0V
1/6"Clock/P-L
1/6"Clock/P-H
SUB1
5V
Bit Bus
11"/12" Frame Print
Op. Panel
Main Module
Status Code
Controller

Figure 3-17. 10.00 Change Developer

Error Byte: 02/01

Change Developer

The developer must be replaced every 2,050,000 12-inch pages (2,050,000 12-inch pages = 2,250,000 11-inch pages).

Submodule 1 sends a frame to the main module after every printed 12-inch page (72-1/6 inch clocks). The main module decrements the count of the counter for the developer after every 100 pages. The current count of the counter for the developer can be inquired in the menu under 2.0. When the counter arrives at 50,000 pages, the warning `(WO.O) CHANGE DEVELOPER` is indicated on the second line in the operator panel. Now the operator can replace the developer, for example, after the next paper end (see description exchange of developer). The developer exchange is acknowledged automatically and the counter for the developer is reset to 2,050,000 12-inch pages.

If the operator does not change the developer after the warning display, and the counter arrives at count 0, the printer stops with the status message `10.00 CHANGE DEVELOPER`. A restart is only possible when the developer has been changed.

Additional information about the function of the counter in the main module:

- 2 memories of the main module are loaded with the hex values, which are reduced by 1 after every 100 printed 12 inch pages.

  5014= 10,500 decimal

  20500 x 100= 1,050,000 decimal

- When the counter reaches the count 01 F4, the warning is indicated in the operator panel.

  01 F4= 500 decimal

  500 x 100 = 50,000 decimal

When the printer is switched off, the current counts of the counter are entered into the NV-RAM. After printer power-on, the memories are loaded again with the values from the NV-RAM.

10.01 Change Developer Error

10.01 CHANGE DEVELOPER ERROR

Figure 3-18. 10.01 Change Developer Error

Error Byte: 11/10

The routine for changing the developer was not terminated.

11.00 Calibrator Unlocked

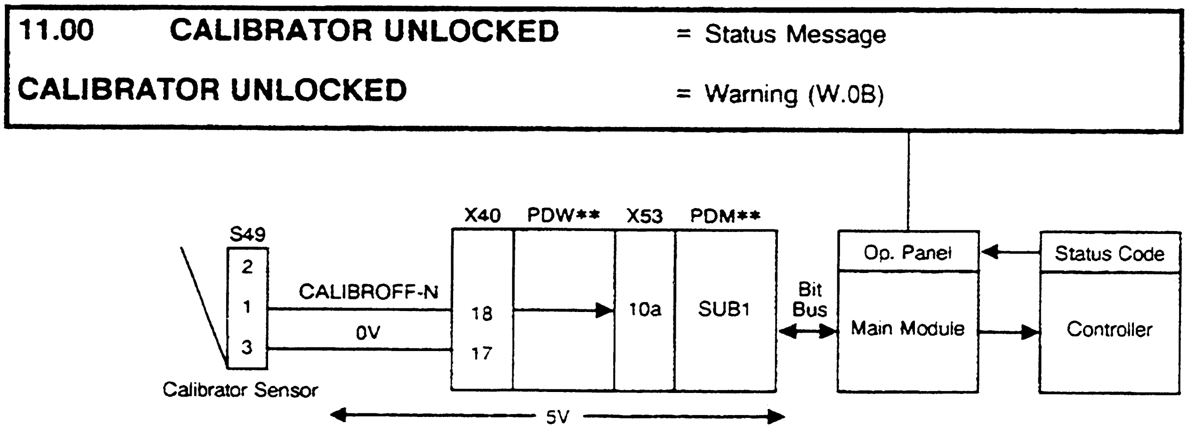

11.00 CALIBRATOR UNLOCKED = Status Message
CALIBRATOR UNLOCKED = Warning (W.0B)
S49
2
1
3
Calibrator Sensor
CALIBROFF-N
0V
X40
18
17
PDW**
X53
10a
PDM**
SUB1
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V

Figure 3-19. 11.00 Calibrator Unlocked

Error Byte: 05/08

Paper Separator at Paper Rocker is Inactive

In the paper feed, the paper runs through a calibrator gap, which is primarily intended to prevent the feeding of more than one paper. This protects the PCD from mechanical destruction. If the calibrator switch is switched from ON to OFF, the calibrator gap is widened. This allows the use of special paper. The microswitch S49 (relays 1-3) reports the position of the calibrator gap to submodule 1 with the signal CALIBROFF-N.

The error display `11.00 CALIBRATOR UNLOCKED` depends on the operator panel adjustment.

Adjustment at Switch	Adjustment in Menu	
	calibrator on	calibrator off
calibrator on	no display	no display
calibrator off	11.00 CALIBRATOR UNLOCKED = Status Message	(W.0B) CALIBRATOR UNLOCKED = Warning

Calibrator on =Normal Position	⇒ Switch S49 is actuated ⇒ Signal CALIBROFF-N = 0V
Calibrator off	⇒ Switch S49 is not actuated ⇒ Signal CALIBROFF-N = 5V

Possible Error Causes

- Check menu input
- Microswitch defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, or contact error)
- Controller PCB PDM** defective
- Connector PCB PDW** defective

12.00 Change Corotron Cartridges

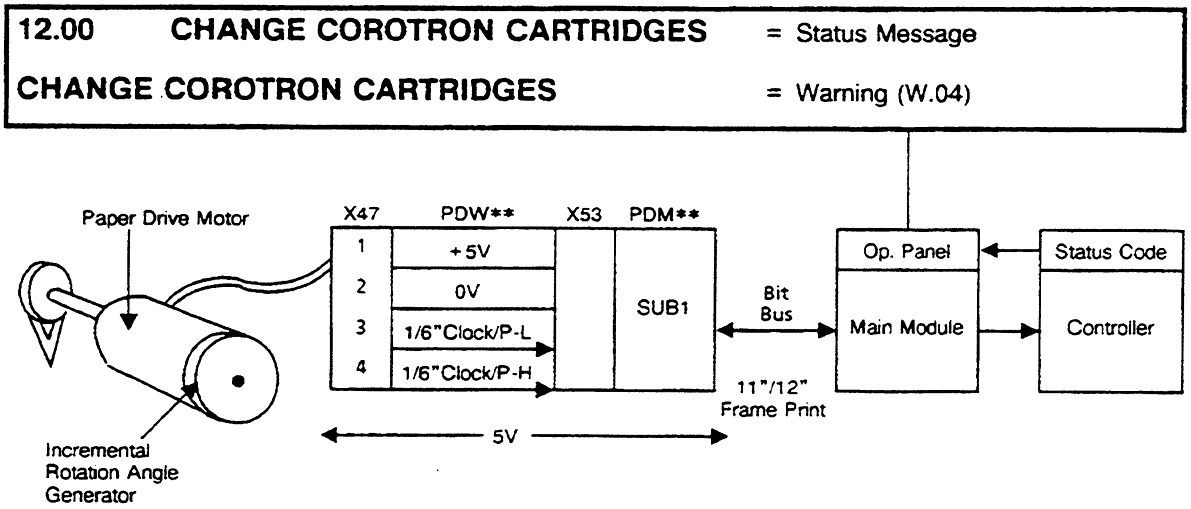

12.00 CHANGE COROTRON CARTRIDGES = Status Message
CHANGE COROTRON CARTRIDGES = Warning (W.04)
Paper Drive Motor
Incremental Rotation Angle Generator
X47
PDW**
X53
PDM**
1
+5V
2
0V
3
1/6"Clock/P-L
4
1/6"Clock/P-H
SUB1
5V
Bit Bus
11"/12" Frame Print
Op. Panel
Main Module
Status Code
Controller

Figure 3-20. 12.00 Change Corotron Cartridges

Error Byte: 02/10

Replace Corotron Cartridges

The corotron cartridges must be replaced every 2,050,000 12-inch pages (2,050,000 12-inch pages = 2,250,000 11-inch pages).

Submodule 1 sends a frame to the main module after every printed 12-inch page (72-1/6 inch clocks). The main module decrements the count of the counter for the corotron cartridges after every 100 pages. The current count of the counter for the corotron cartridges can be inquired in the menu under 2.0.

When the counter arrives at 50,000 pages, the warning `(WO.4) CHANGE COROTRON CARTRIDGES` is indicated on the second line of the operator panel. Now the operator can replace the corotron cartridges, for example, after the next paper end and acknowledge 3.2 on the operator panel.

After the acknowledgement the counter is reset to 2,050,000 12-inch pages.

If the operator does not replace the corotron cartridges after the warning display and the counter arrives at count 0, the printer stops with the status message `12.00 CHANGE COROTRON CARTRIDGES`. A restart is only possible when the corotron cartridges have been replaced and 3.2 acknowledged on the operator panel menu.

Additional information about the function of the counter in the main module:

- 2 memories of the main module are loaded with the hex values 50 and 14, which are reduced by 1 after every 100 printed 12 inch pages.

  5014 = 20,500 decimal

  20,500 x 100 = 2,050,000 decimal

- When the counter reaches the count 01 E4, the warning is displayed on the operator panel.

  01 E4 = 500 decimal

  500 x 100 = 50,000 decimal

When the printer is switched off, the current counts of the counter are entered into the NV-RAM. After printer power-on, the memories are loaded again with the values from the NV-RAM.

14.00 Check Toner Density

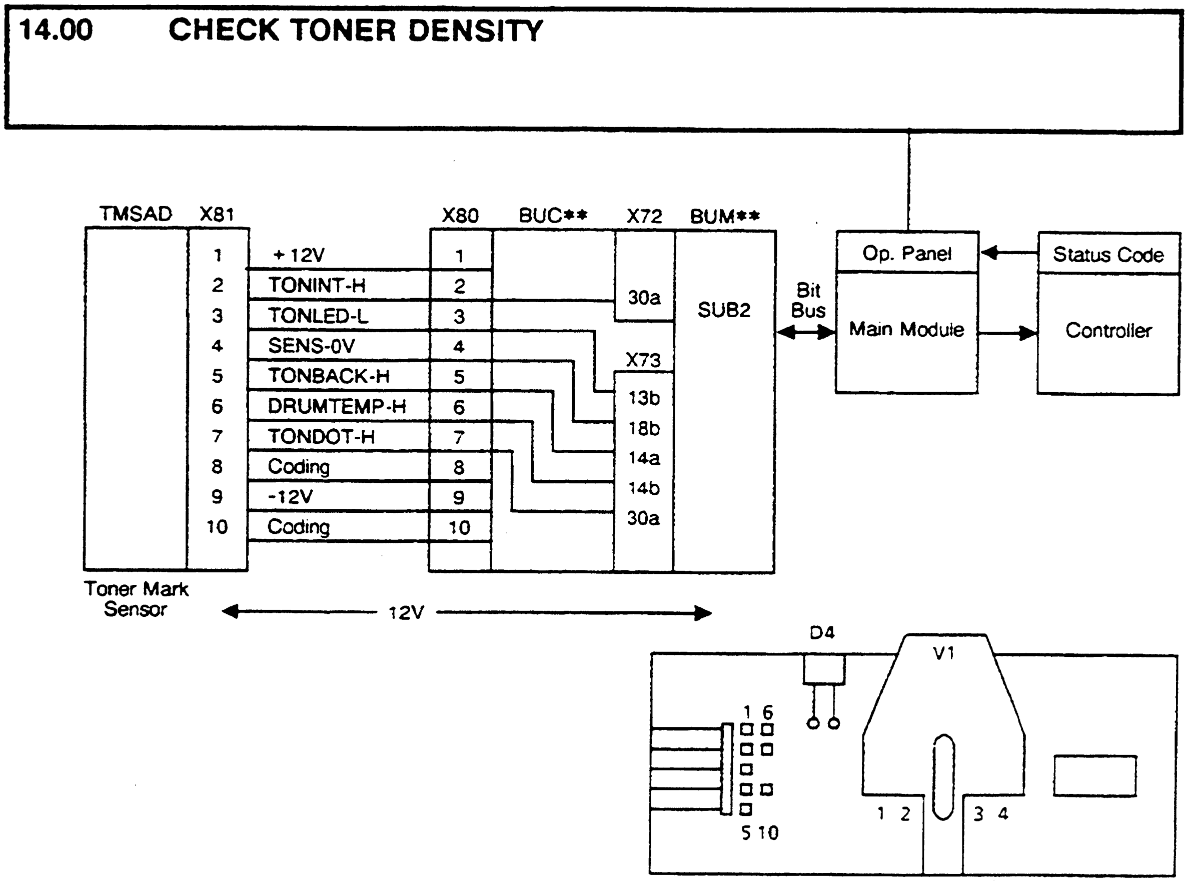

14.00 CHECK TONER DENSITY
TMSAD
X81
X80
BUC**
X72
BUM**
1
2
3
4
5
6
7
8
9
10
+12V
TONINT-H
TONLED-L
SENS-0V
TONBACK-H
DRUMTEMP-H
TONDOT-H
Coding
-12V
Coding
30a
X73
13b
18b
14a
14b
30a
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Toner Mark Sensor
12V
D4
V1
1 6
5 10
1 2
3 4

Figure 3-21. 14.00 Check Toner Density

Error Byte: 14/80

Tonermark Too Light

During printing, the print density of every toner mark is measured by the toner mark sensor and evaluated by submodule 2. If the tonermark density is below the nominal print density (adjustable in the operator panel), the toner feed motor is activated. The toner feed motor drives a roller made of foamed plastics, which feeds the toner from the toner box to the developer station. An error message is setif 50 tonermarks in sequence are detected as too light and this cannot be compensated by the toner feed.

Possible Error Causes

- Tonermark sensor dirty
- Tonermark sensor defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, or contact error) to tonermark sensor or to toner feed motor
- Toner-empty-sensor detects no toner empty in toner box
- Toner feed motor defective
- oner feed roller defective
- Controller PCB BUP** defective
- Connector PCB BUC** defective

15.00 Vacuum Value Open

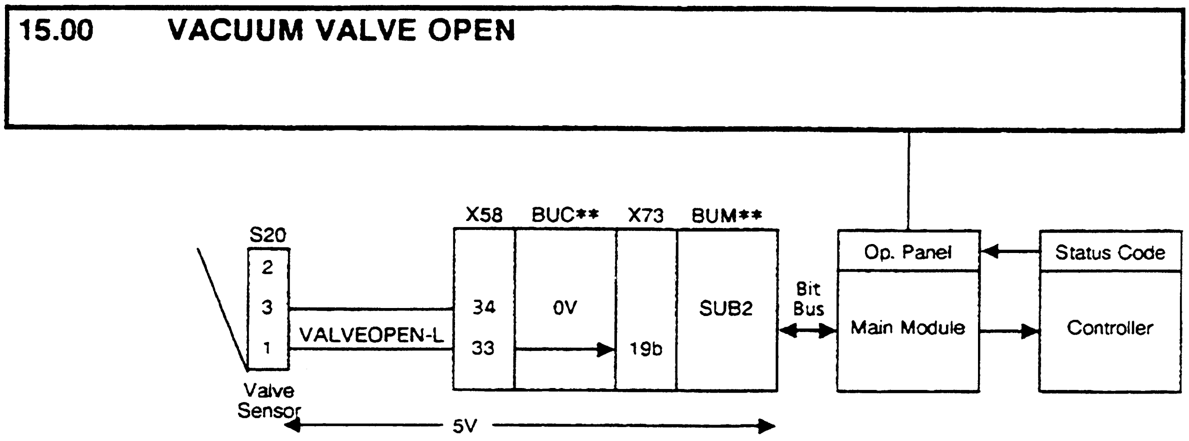

15.00 VACUUM VALVE OPEN
S20
2
3
1
Valve Sensor
VALVEOPEN-L
X58
BUC**
X73
BUM**
34
33
0V
19b
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V

Figure 3-22. 15.00 Vacuum Valve Open

Error Byte: 08/10

Switch for Vacuum System is Still Set to SERVICE

The switch in the vacuum system can be set to two positions.

PRINT ⇒ Normal position during printing

SERVICE ⇒ Air flap position for suction of developer mixture

The switch is located at the rear of the printer above the cyclone filter. Microswitch S20 (relays 1-3) generates signal VALVEOPEN-L, which is evaluated by submodule 2.

Switch position PRINT ⇒ Switch S20 not actuated
⇒ Signal VALVEOPEN-L = 5V

Switch position SERVICE ⇒ Switch S20 actuated
⇒ Signal VALVEOPEN-L = 0V

Possible Error Causes

- Microswitch defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** defective
- Connector PCB BUC** defective

16.00 No Paper Run

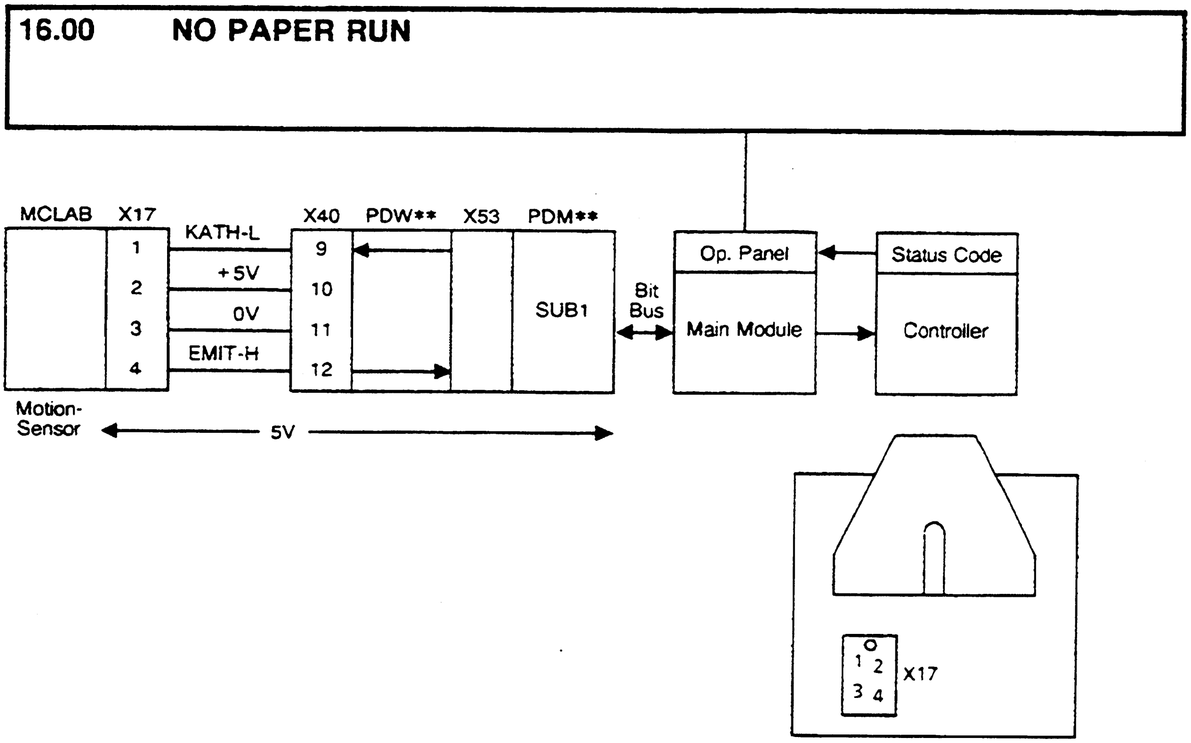

16.00 NO PAPER RUN
MCLAB
X17
KATH-L
X40
PDW**
X53
PDM**
1
2
3
4
+5V
0V
EMIT-H
9
10
11
12
SUB1
Bit Bus
Op. Panel
Status Code
Main Module
Controller
Motion-Sensor
5V
0
1 2
3 4
X17

Figure 3-23. 16.00 No Paper Run

Error Byte: 04/01

Paper is Not Moved in Paper Transport

The motion clock sensor (light barrier) monitors the edge perforation of the paper in the paper transport in the front feed tractor. The mirror is located at the front tractor cover above the sensor. The LED current of the sensor is adjusted with signal KATH-L. The signal level of EMIT-H changes during paper motion at the detection of hole and edge perforation between two holes.

Perforation detection ⇒ Signal EMIT-H = 4 - 5V
Edge perforation detection ⇒ Signal EMIT-H = 0V
⇒ Signal KATH-L = app. 4V

Submodule 1 evaluates the EMIT-H clocks and compares them with the 1/6-inch clocks, which are generated by the incremental rotation angle generator at the paper transport stepper motor. An error message is generated if the rotation angle generator detects 9 x 1/6 inch without any change of signal EMIT-H . This means that the printer stops immediately if 3 edge perforations are not detected during printing and the error message `16.00 NO PAPER RUN` is displayed.

Possible Error Causes

- Tractor cover not closed or misadjusted
- Mirror defective, dirty or dull
- Foreign particles between sensor and mirror (paper clippings, paper residuals)
- Motion-clock-sensor defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, or contact error)
- Controller PCB PDM** defective
- Connector PCB PDW** defective

17.00 Vacuum Valve Closed

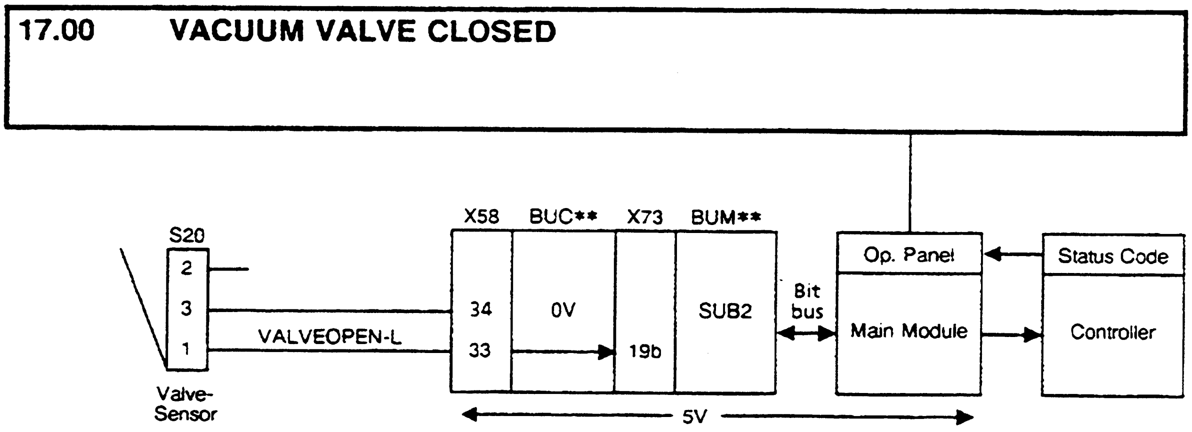

17.00 VACUUM VALVE CLOSED
S20
2
3
1
Valve-Sensor
VALVEOPEN-L
X58
BUC**
X73
BUM**
34
33
0V
19b
SUB2
Bit bus
Op. Panel
Main Module
Status Code
Controller
5V

Figure 3-24. 17.00 Vacuum Valve Closed

Error Byte: 12/40

Switch for Vacuum System is Still Set to PRINT

The switch in the vacuum system can be set to two positions.

PRINT ⇒ Normal position during printing
SERVICE ⇒ Air flap position for suction of developer mixture

The status message is released if the developer mixture routine is started at the operator panel and the switch is still positioned at PRINT. The error can only be reset by CHECK RESET.

The switch is located at the rear of the printer above the cyclone filter. Microswitch S20 (relays 1-3) generates signal VALVEOPEN-L, which is evaluated by submodule 2.

Switch position PRINT ⇒ Switch S20 not actuated
⇒ Signal VALVEOPEN-L = 5V

Switch position SERVICE ⇒ Switch S20 actuated
⇒ Signal VALVEOPEN-L = 0V

Possible Error Causes

- Microswitch defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** defective
- Connector PCB BUC** defective

18.00 Developer Station Closed

18.00	DEVELOPER STATION CLOSED

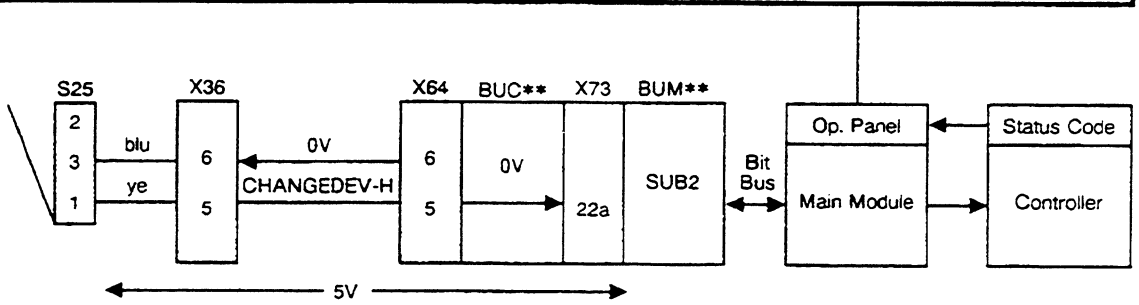


Figure 3-25. 18.00 Developer Station Closed

Error Byte: 12/80

Developer Station in Position for Printing

In order to empty the developer station, the lever at the developer station must be actuated. This changes the position of the magnetic stator in the uppermost developer roller and opens the magnetic mixture barrier. The lever can only be actuated when the vacuum hose is disconnected from the toner box and plugged into the developer station. The lever is located at the drive side of the device, switch S25 is positioned on the operator panel side of the printer.

The position of the lever is monitored with microswitch S25 (relays 1-3). The status message is displayed if the routine for developer drain is selected at the operator panel, and the lever is still in position for printing. The error can only be reset by CHECK RESET.

Position of lever during printing is vertical:

Microswitch S25 is actuated
S25 Pin 1 = yellow= 0V CHANGEDEV-H
S25 Pin 3 = blue = 0V

Position of lever during changing of developer is horizontal:

Microswitch S25 is not actuated
S25 Pin 1 = yellow= 5V CHANGEDEV-H
S25 Pin 3 = blue = 0V

Possible Error Causes

- Microswitch defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** defective
- Connector PCB BUC** defective

19.00 Tonerfeed System Not Installed

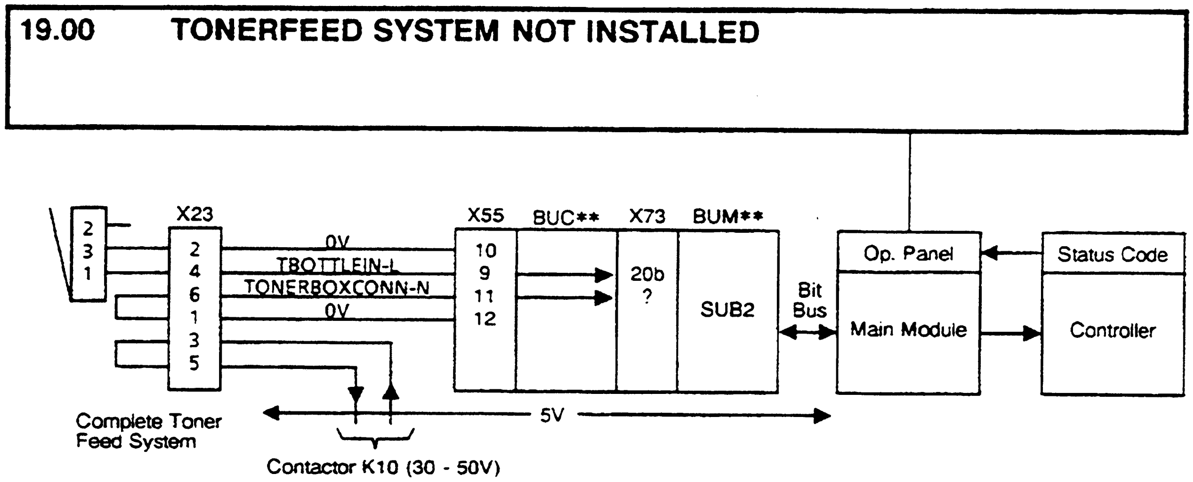

19.00 TONERFEED SYSTEM NOT INSTALLED
X23
X55
BUC**
X73
BUM**
2
3
1
2
4
6
1
3
5
0V
TBOTTLEIN-L
TONERBOXCONN-N
0V
10
9
11
12
20b
?
SUB2
Bit Bus
Op. Panel
Status Code
Main Module
Controller
Complete Toner Feed System
5V
Contactor K10 (30 - 50V)

Figure 3-26. 19.00 Tonerfeed System Not Installed

Error Byte: 07/02

Toner Feed System Not Installed

If the whole toner feed system is removed, the safety circuit is open and contactor K10 becomes inactive. The submodule detects this status and causes status message `19.00 TONERFEED SYSTEM NOT INSTALLED` to be displayed.

Possible Error Causes

- Plug defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** defective
- Connector PCB BUC** defective

20.00 Temperature Fusing Station: Minimal Limit Front

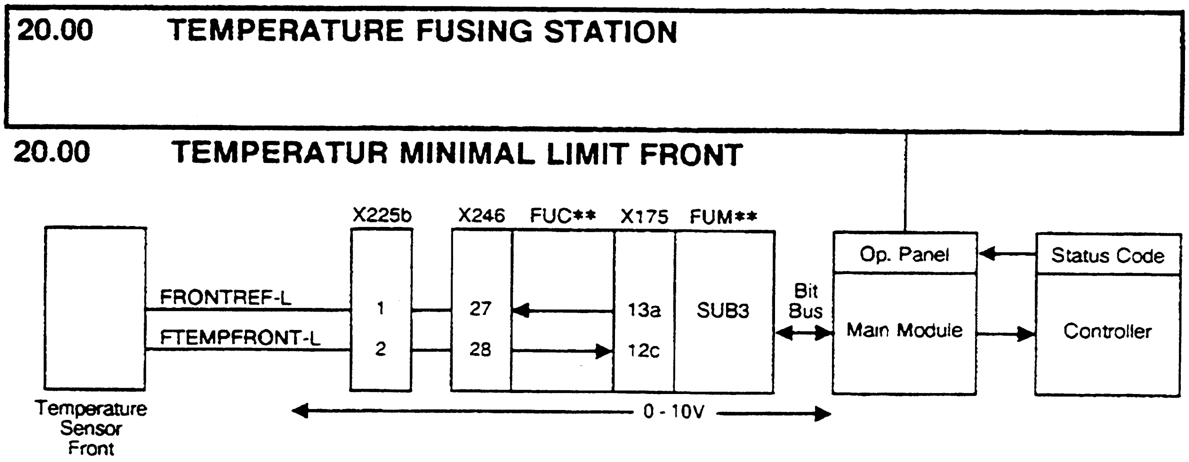

20.00 TEMPERATURE FUSING STATION
20.00 TEMPERATUR MINIMAL LIMIT FRONT
X225b
X246
FUC**
X175
FUM**
FRONTREF-L
FTEMPFRONT-L
1
2
27
28
13a
12c
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Temperature Sensor Front
0 - 10V

Figure 3-27. 20.00 Temperature Fusing Station: Temperature Minimal Limit Front

Error Byte: 20/01

Temperature of Front Half of Fuser Roller Lower Than

Approximately 180°C A temperature sensor (NTC=hot temperature conductor), mounted on a slewable sensor strip, measures the temperature of the front half of the fuser roller and reports this temperature with signal FTEMPFRONT-L to submodule 3.

During Standby	the fuser roller must be 240°C hot.
During Print	the fuser roller must be 220°C hot.

Signal level of FTEMPFRONT-L	⇒ at	20°C	≈	10 V
	⇒ at	240°C	≈	260 mV
Resistance value of temperature sensor	⇒ at	20°C	≈	70 kΩ
	⇒ at	240°C	≈	650 Ω

Switch off the printer and disconnect plug X225b when measuring the resistance value.

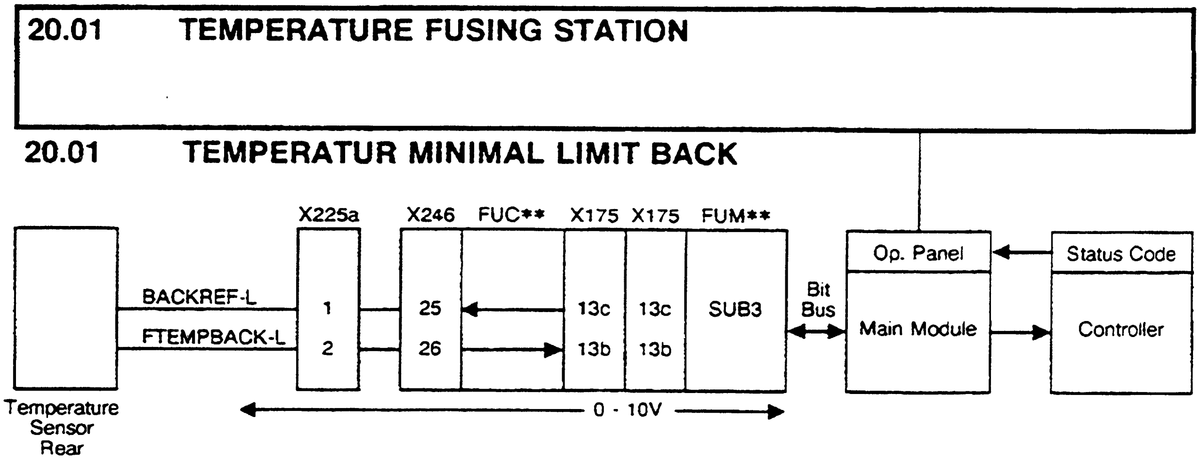
This error message is generated when the temperature sensor detects a value below 180°C above the front half of the fuser roller or after approximately 10 minutes of preparation. When the printing temperature is reached (220°C), the error is reset.

If print temperature (220°C) is attained, the error is reset.

Possible Error Causes

- Sensor strip is swivelled off
- Sensor defective, misadjusted, or connected incorrectly
- Radiant heater defective
- Line error (short circuit, line breakage, or contact error)
- Heater PCB FUPAB defective
- Controller PCB FUM** defective
- Connector PCB FUC** defective

20.01 Temperature Fusing Station: Minimal Limit Back



20.01 TEMPERATURE FUSING STATION
20.01 TEMPERATUR MINIMAL LIMIT BACK
X225a
X246
FUC**
X175
X175
FUM**
BACKREF-L
FTEMPBACK-L
1
2
25
26
13c
13b
13c
13b
SUB3
Bit Bus
Op. Panel
Status Code
Main Module
Controller
Temperature Sensor Rear
0 - 10V

Figure 3-28. 20.01 Temperature Fusing Station: Temperature Minimal Limit Back

Error Byte: 20/02

Temperature of Rear Half of Fuser Roller Lower Than

Approximately 180°C

A temperature sensor (NTC=hot temperature conductor), mounted on a slewable sensor strip, measures the temperature of the rear half of the user roller and reports this temperature with signal FTEMPBACK-L to submodule 3.

During Standby	the fuser roller must be 240°C hot.
During Print	the fuser roller must be 220°C hot.

Signal level of FTEMPBACK-L	⇒ at	20°C	≈	10 V
	⇒ at	240°C	≈	260 mV
Resistance value of temperature sensor	⇒ at	20°C	≈	70 kΩ
	⇒ at	240°C	≈	650 Ω

Switch of the printer and disconnect plug X225a when measuring the resistance value.

This error message is generated when the temperature sensor detects a value below 180°C above the rear half of the fuser roller or after approximately 10 minutes of preparation.

If print temperature (220°C) is attained, the error is reset.

Possible Error Causes

- Sensor strip is swivelled off
- Sensor defective, misadjusted or connected incorrectly
- Radiant heater defective
- Line error (short circuit, line breakage, or contact error)
- Heater PCB FUPAB defective
- Controller PCB FUM** defective
- Connector PCB FUC** defective

20.08 Temperature Fusing Station: Front Sensor Defect

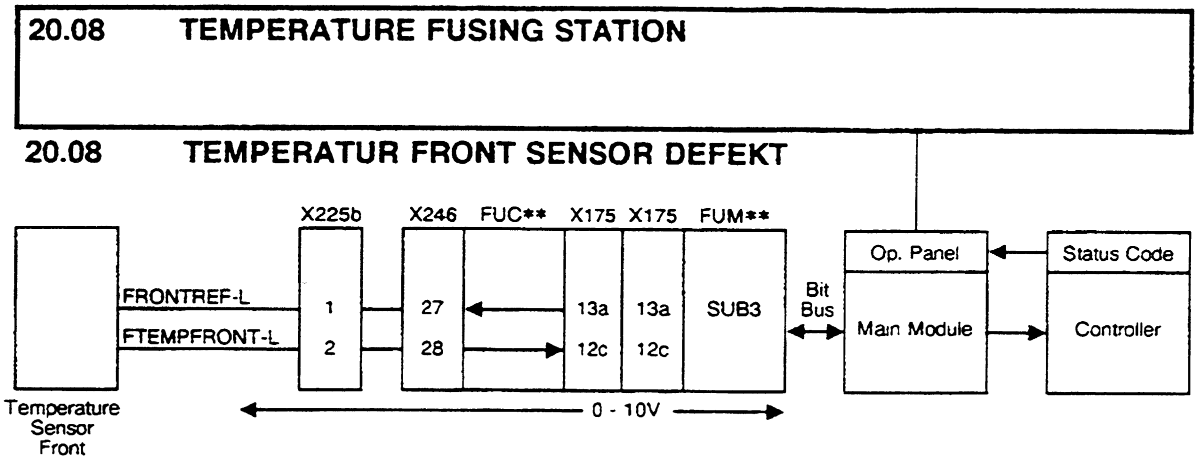

20.08 TEMPERATURE FUSING STATION
20.08 TEMPERATUR FRONT SENSOR DEFEKT
X225b
X246
FUC**
X175
X175
FUM**
FRONTREF-L
FTEMPFRONT-L
1
2
27
28
13a
12c
13a
12c
SUB3
Bit Bus
Op. Panel
Status Code
Main Module
Controller
Temperature Sensor Front
0 - 10V

Figure 3-29. 20.08 Temperature Fusing Station: Temperature Front Sensor Defect

Error Byte: 21/01

The temperature sensor above the front half of the fuser roller is defective. The error is reset by CHECK RESET.

Possible Error Causes

- Sensor defective, misadjusted, or connected incorrectly
- Line error (short-circuit, line breakage, contact error)
- Controller PCB FUM** defective
- Connector PCB FUC** defective

20.09 Temperature Fusing Station: Back Sensor Defect

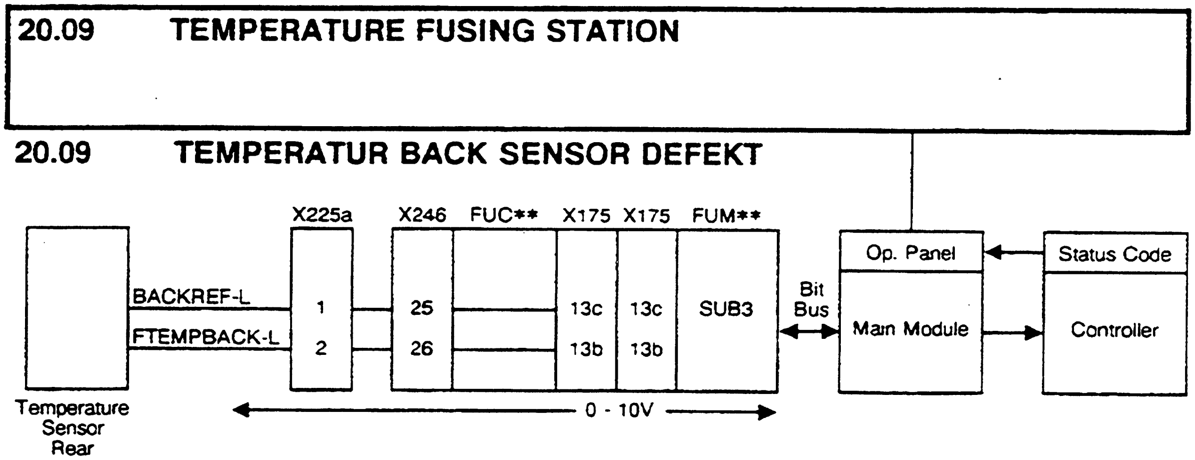

20.09 TEMPERATURE FUSING STATION
20.09 TEMPERATUR BACK SENSOR DEFEKT
X225a
X246
FUC**
X175
X175
FUM**
BACKREF-L
FTEMPBACK-L
1
2
25
26
13c
13b
13c
13b
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Temperature Sensor Rear
0 - 10V

Figure 3-30. 20.09 Temperature Fusing Station: Temperature Back Sensor Defect

Error Byte: 21/02

The temperature sensor above the rear half of the fuser roller is defective. The error is reset by CHECK RESET.

Possible Error Causes

- Sensor defective, misadjusted, or connected incorrectly
- Line error (short-circuit, line breakage, contact error)
- Controller PCB FUM** defective
- Connector PCB FUC** defective

20.0A Temperature Fusing Station: Fuser Roller Front Too High

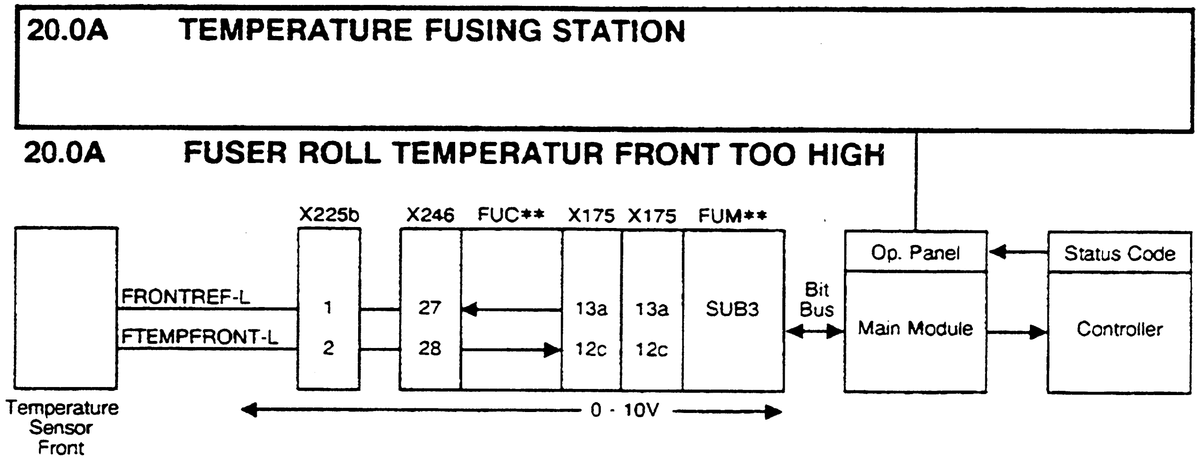

20.0A TEMPERATURE FUSING STATION
20.0A FUSER ROLL TEMPERATUR FRONT TOO HIGH
X225b
X246
FUC**
X175
X175
FUM**
FRONTREF-L
FTEMPFRONT-L
1
2
27
28
13a
12c
13a
12c
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Temperature Sensor Front
0 - 10V

Figure 3-31. 20.0A Temperature Fusing Station: Fuser Roller Too High

Error Byte: 21/04

Temperature Front Half of Fuser Roller Exceeds 260°C

A temperature sensor (NTC=hot temperature conductor), mounted on a slewable sensor strip, measures the temperature of the front half of the fuser roller and reports this temperature with signal FTEMPFRONT-L to submodule 3.

During Standby	the fuser roller must be 240°C hot.
During Print	the fuser roller must be 220°C hot.

Signal level of FTEMPFRONT-L	⇒ at	20°C	≈	10 V
	⇒ at	240°C	≈	260 mV
Resistance value of temperature sensor	⇒ at	20°C	≈	70 kΩ
	⇒ at	240°C	≈	650 Ω

Switch off the printer and disconnect plug X225b when measuring the resistance value.

This error message is generated when the temperature sensor detects a value above 260°C above the front half of the fuser roller.

Possible Error Causes

- Sensor defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, or contact error)
- Heater PCB FUPAB defective
- Controller PCB FUM** defective
- Connector PCB FUC** defective

20.0B Temperature Fusing Station: Fuser Roller Back Too High

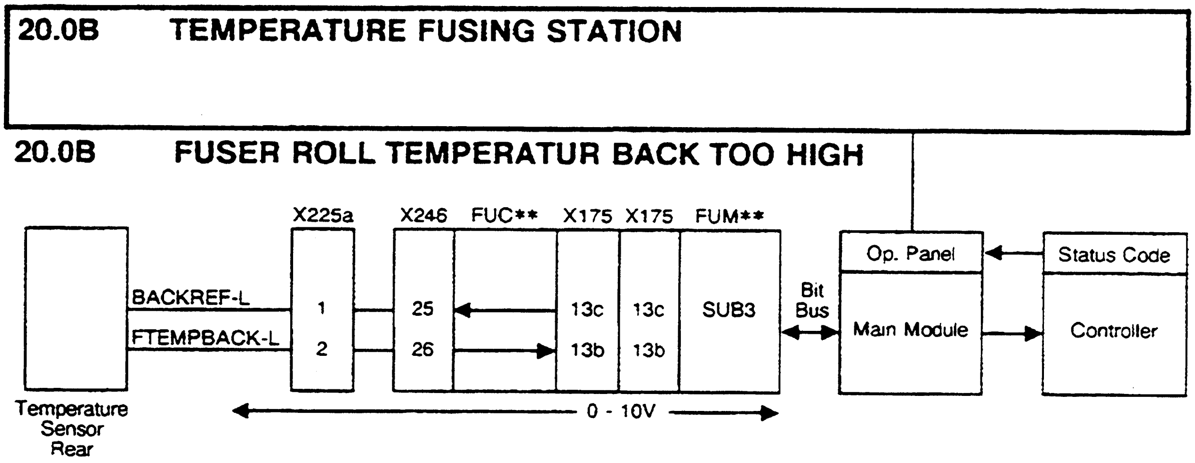

20.0B TEMPERATURE FUSING STATION
20.0B FUSER ROLL TEMPERATUR BACK TOO HIGH
X225a
X246
FUC**
X175
X175
FUM**
BACKREF-L
FTEMPBACK-L
1
2
25
26
13c
13b
13c
13b
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Temperature Sensor Rear
0 - 10V

Figure 3-32. 20.0B Temperature Fusing Station: Fuser Roll Back Too High

Error Byte: 21/08

Temperature Rear Half of Fuser Roller Exceeds 260°C

A temperature sensor (NTC=hot temperature conductor), mounted on a slewable sensor strip, measures the temperature of the rear half of the fuser roller and reports this temperature with the signal FTEMPBACK-L to submodule 3.

During Standby	the fuser roller must be 240°C hot.
During Print	the fuser roller must be 220°C hot.

Signal level of FTEMPBACK-L	⇒ at	20°C	≈	10 V
	⇒ at	240°C	≈	260 mV
Resistance value of temperature sensor	⇒ at	20°C	≈	70 kΩ
	⇒ at	240°C	≈	650 Ω

This error message is generated when the temperature sensor detects a value above 260°C above the rear half of the fuser roller.

Possible Error Causes

- Sensor defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, or contact error)
- Heater PCB FUPAB defective
- Controller PCB FUM** defective
- Connector PCB FUC** defective

21.00 Change Heater

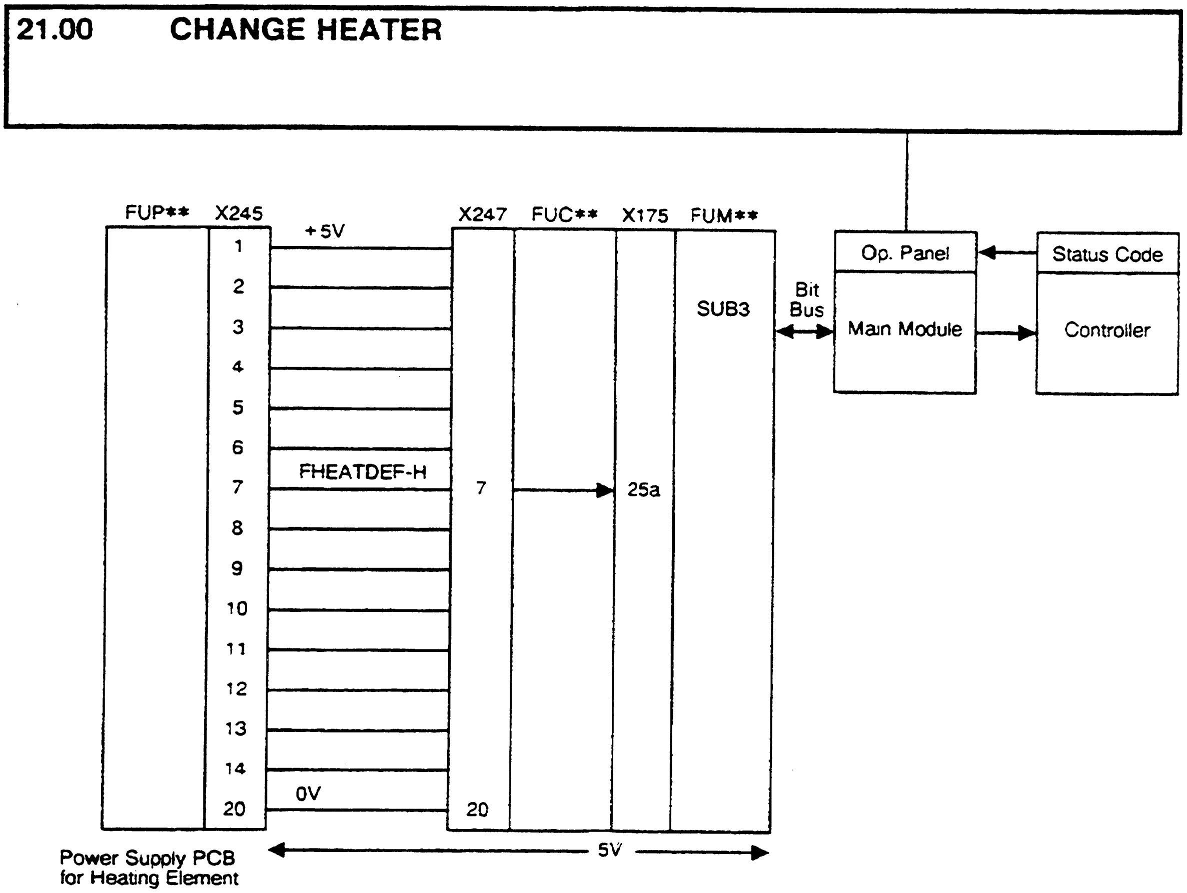

21.00 CHANGE HEATER
FUP** X245
+5V
1
2
3
4
5
6
FHEATDEF-H
7
8
9
10
11
12
13
14
0V
20
X247 FUC** X175 FUM**
7
25a
20
SUB3
Bit Bus
Op. Panel
Status Code
Main Module
Controller
Power Supply PCB for Heating Element
5V

Figure 3-33. 21.00 Change Heater

Error Byte: 22/02

Defective Heater Element

The error is reset by CHECK RESET.

Possible Error Causes

- Defective front heater element
- Line error (short-circuit, line breakage, contact error)
- Check cooling fans
- Heating PCB FUPAB defective
- Connector PCB FUC** defective
- Controller PCB FUM** defective

22.00/22.01 Fusing Pressure Roller Error

22.00 FUSING PRESSURE ROLLER ERROR
22.01 FUSING PRESSURE ROLLER ERROR

22.00 FIXPRESS ON ERROR
22.01 FIXPRESS OFF ERROR

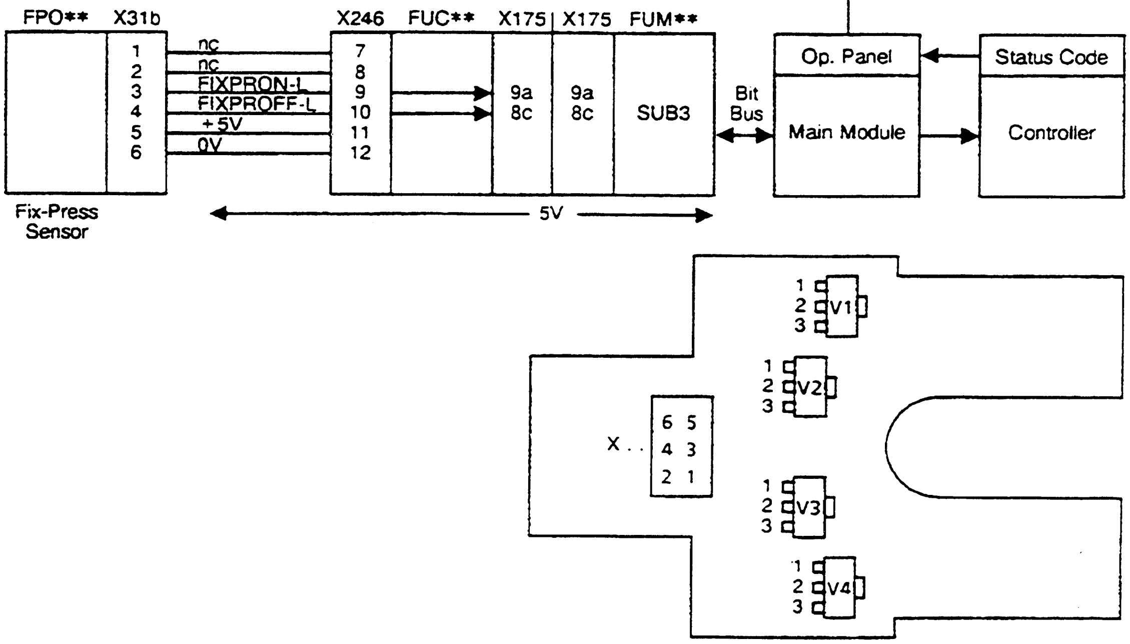

FPO**
X31b
1
2
3
4
5
6
nc
nc
FIXPRON-L
FIXPROFF-L
+5V
0V
Fix-Press Sensor
X246
7
8
9
10
11
12
FUC**
X175
9a
8c
X175
9a
8c
FUM**
SUB3
5V
Bit Bus
Op. Panel
Main Module
Status Code
Controller
1
2
3
V1
1
2
3
V2
1
2
3
V3
1
2
3
V4
X . .
6 5
4 3
2 1

Figure 3-34. 22.00/22.01 Fusing Pressure Roller Error

Error Byte: 18/10
Error Byte: 18/20

FIXPRESSON or FIXPRESSOFF Position Not Detected

The fix press sensor (4 hall switches and 1 magnet; only 2 of the 4 hall switches are evaluated) monitors whether the pressure roller is swivelled on or off. The swivelled-off position (FIXPROFF-L) is also the zero position for the stepper motor.

The error message results when the FIXPRESSON/FIXPRESSOFF position is not detected by the sensor before the stepper motor performs its last step.

```
Swivelled off:      X31b   /3  =  +5V
                           /4  =   0V
Swivelled on:       X31b   /3  =   0V
                           /4  =  +5V
```

Possible Error Causes

- Line error (short-circuit, line breakage, contact error)
- Sensor PCB defective
- Controller PCB FUM** defective
- Power supply PCB for stepper motors FUS** defective
- Connector PCB FUC** defective
- Magnetic disk defective (magnet lost, magnet incorrectly fixed)
- Adjustment error (sensor PCB misadjusted)
- Failure of power transmission between stepper motor and swivel axle (mechanical link)
- Stepper motor defective
- Swivel mechanism stiff or stuck
- Foreign particle between fuser roller and pressure roller
- Lacking voltage of 40V

23.00 Fusing Station Defect: Paper Tension Sensor Error

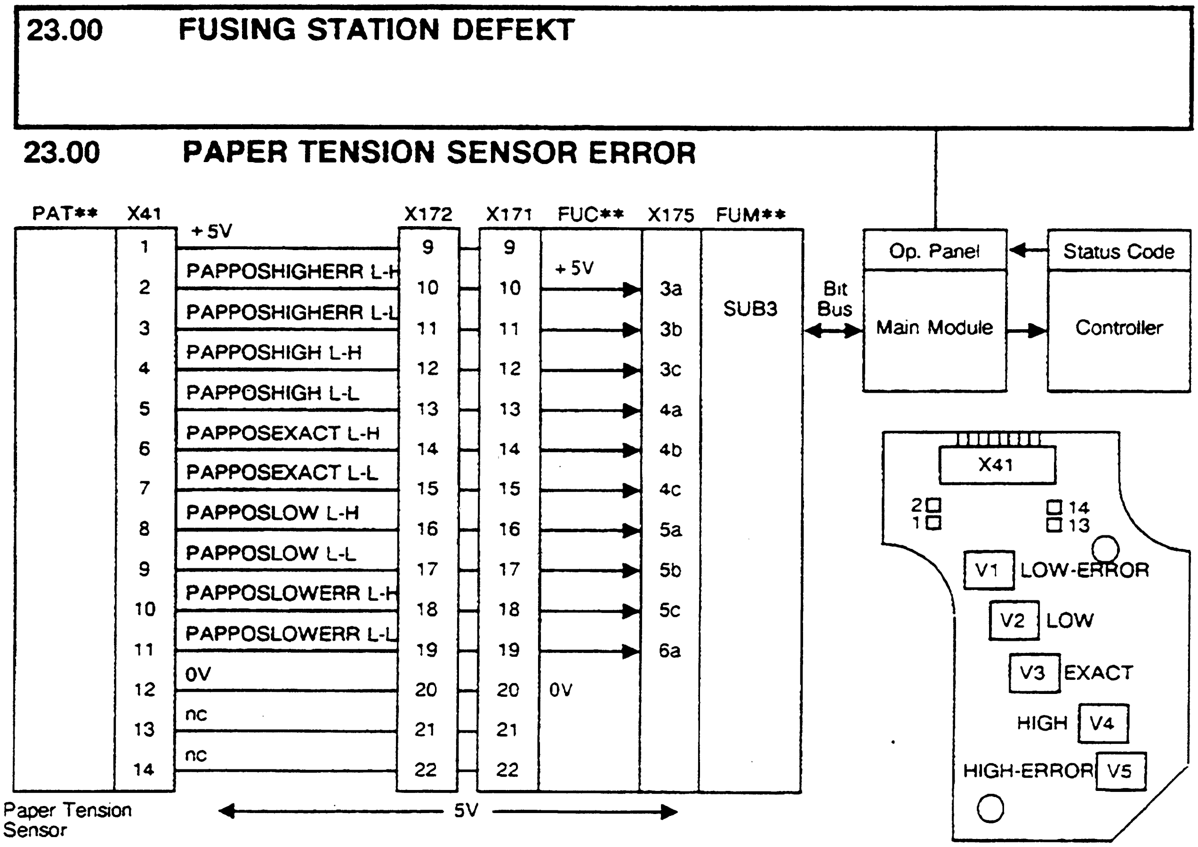

23.00 FUSING STATION DEFEKT
23.00 PAPER TENSION SENSOR ERROR
PAT**
X41
+5V
X172
X171
FUC**
X175
FUM**
PAPPOSHIGHERR L-H
PAPPOSHIGHERR L-L
PAPPOSHIGH L-H
PAPPOSHIGH L-L
PAPPOSEXACT L-H
PAPPOSEXACT L-L
PAPPOSLOW L-H
PAPPOSLOW L-L
PAPPOSLOWERR L-H
PAPPOSLOWERR L-L
0V
nc
nc
+5V
0V
3a
3b
3c
4a
4b
4c
5a
5b
5c
6a
SUB3
Bit Bus
Op. Panel
Status Code
Main Module
Controller
Paper Tension Sensor
5V
X41
2
1
14
13
V1 LOW-ERROR
V2 LOW
V3 EXACT
HIGH V4
HIGH-ERROR V5

Figure 3-35. 23.00 Fusing Station Defect: Paper Tension Sensor Error

Error Byte: 18/01

Defective Paper Tension Sensor Defective

The paper tension sensor (5 hall switches and 1 magnet) detects 5 different positions of the loop puller at the paper conveyor: PAPER-POSITION-HIGH-ERROR,-HIGH, -EXACT, -LOW, and -LOW-ERROR.
HIGH, EXACT, and LOW signals are evaluated for speed control of the fuser roller; HIGH-ERROR and LOW-ERROR signals result in error messages.

An error message occurs when certain plausibility conditions are not fulfilled at the same time:

a. If the paper tension sensor reports more than one paper tension position which is not one of the combinations PAPER-POSITION-LOW-ERROR/PAPER-POSITION-LOW and PAPER-POSITION-HIGH-ERROR/PAPER-POSITION-HIGH.

b. If no change of paper tension position is detected 1 second after print start.

c. If the sequence of the position signals reported is incorrect (for example, -LOW cannot be followed by -HIGH; position -EXACT is lacking).

d. If the control positions for fuser roller speed (-HIGH and -EXACT position) are not detected in regular intervals; for example, after detection of -HIGH, fuser roller speed is increased and position -EXACT must be attained in x seconds.

Possible Error Causes

- Line error (short-circuit, line breakage, contact error at plug)
- Sensor PCB defective
- Controller PCB FUM** defective
- Connector PCB FUC** defective
- Magnet defective (magnet lost, magnet incorrectly fixed)
- Adjustment error (sensor PCB misadjusted)
- Loop puller tension is adjusted too high
- Paper slips between fuser roller and pressure roller

23.01 Fusing Station Defect: Fixpress Sensor Error

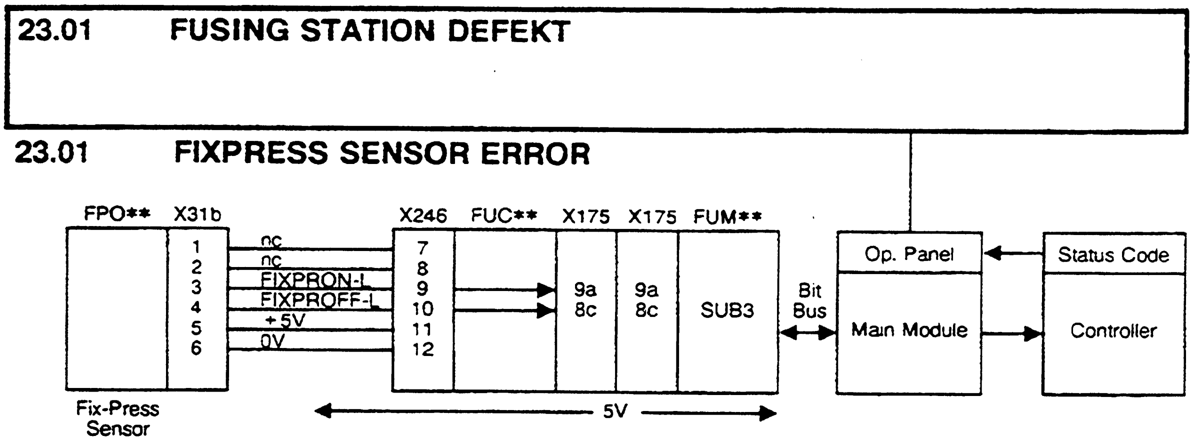

23.01 FUSING STATION DEFEKT
23.01 FIXPRESS SENSOR ERROR
FPO**
X31b
X246
FUC**
X175
X175
FUM**
1
2
3
4
5
6
nc
nc
FIXPRON-L
FIXPROFF-L
+5V
0V
7
8
9
10
11
12
9a
8c
9a
8c
SUB3
Bit
Bus
Op. Panel
Main Module
Status Code
Controller
Fix-Press
Sensor
5V

Figure 3-36. 23.01 Fusing Station Defect: Fixpress Sensor Error

Error Byte: 18/40

FIXPRESSOFF and FIXPRESSON Are Detected Simultaneously

The fix press sensor (4 hall switches and 1 magnet; only 2 of the 4 hall switches are evaluated) monitors whether the pressure roller is swivelled on or off.

This error is reported when the plausibility conditions for the fix press sensor are not fulfilled. Both signals (FIXPRON-L and FIXPROFF-L) are active at the same time.

Possible Error Causes

- Line error (short-circuit, line breakage, contact error at plug)
- Sensor PCB defective
- Controller PCB FUM** defective
- Connector PCB FUC** defective

23.02 Fusing Station Defect: Fix Saddle Sensor Error

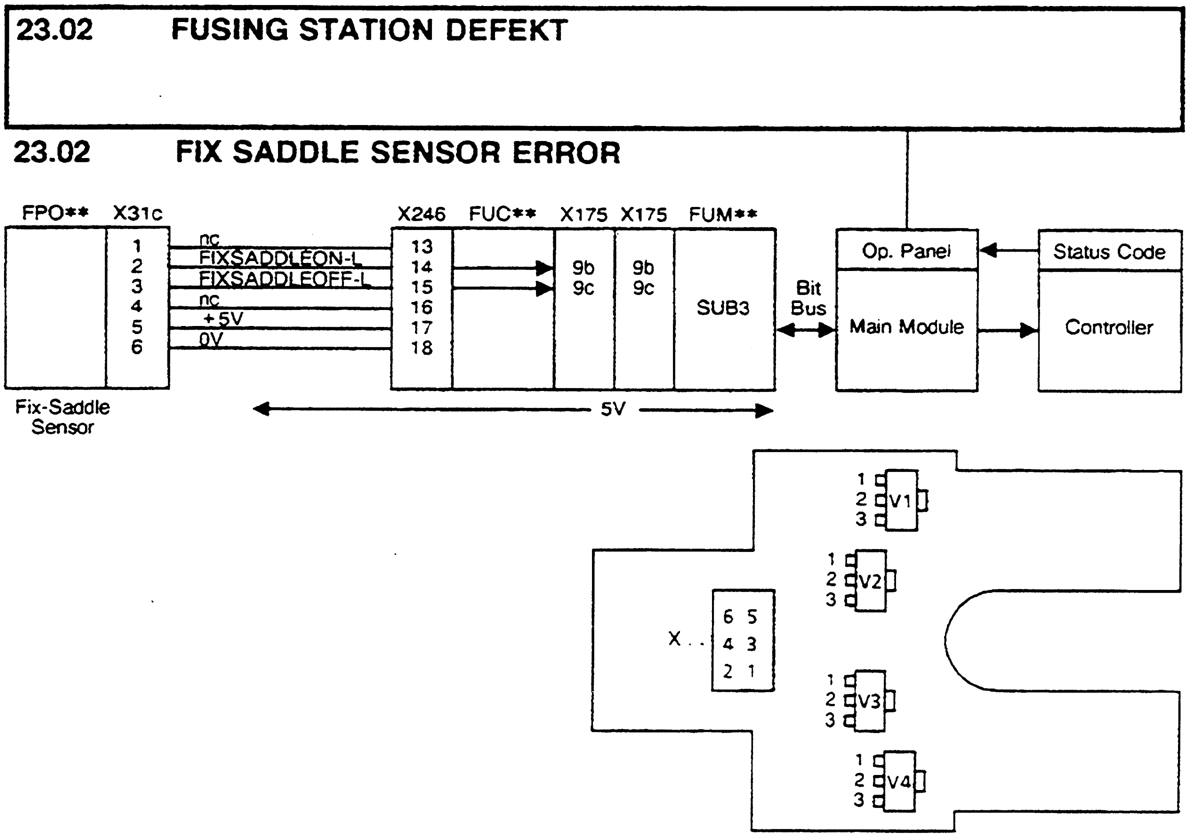

23.02 FUSING STATION DEFEKT
23.02 FIX SADDLE SENSOR ERROR
FPO**
X31c
X246
FUC**
X175
X175
FUM**
1
2
3
4
5
6
nc
FIXSADDLEON-L
FIXSADDLEOFF-L
nc
+5V
0V
13
14
15
16
17
18
9b
9c
9b
9c
SUB3
Bit Bus
Op. Panel
Status Code
Main Module
Controller
Fix-Saddle Sensor
5V
1 2 3 V1
1 2 3 V2
1 2 3 V3
1 2 3 V4
X..
6 5
4 3
2 1

Figure 3-37. 23.02 Fusing Station Defect: Fix Saddle Sensor Error

Error Byte: 19/02

FIXSADDLEON and FIXSADDLEOFF Are Detected Simultaneously

The fix saddle sensor (4 hall switches and 1 magnet; only 2 of the 4 hall switches are evaluated) monitors whether saddle is swivelled on or off.

This error is reported when the plausibility conditions for the fix saddle sensor are not fulfilled. Both signals (FIXSADDLEON-L and FIXSADDLEOFF-L) are active at the same time.

Possible Error Causes

- Line error (short-circuit, line breakage, contact error at plug)
- Sensor PCB defective
- Controller PCB FUM** defective
- Connector PCB FUC** defective

23.03 Fusing Station Defect: Paperbrake Error

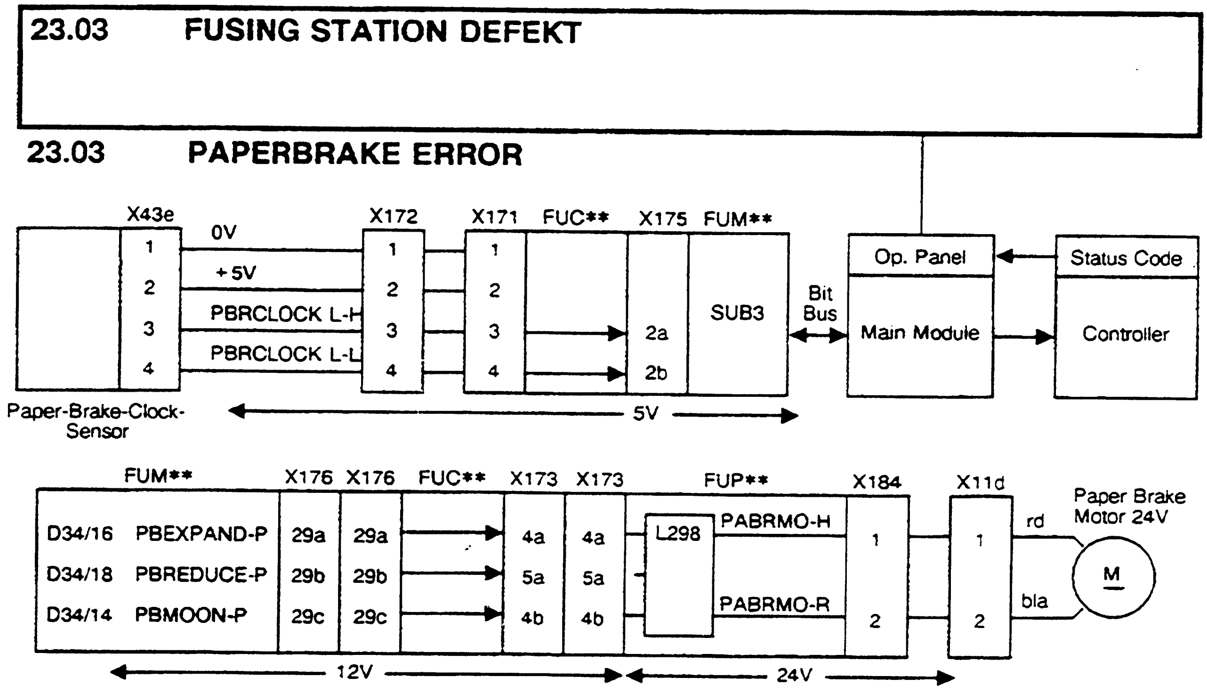

23.03 FUSING STATION DEFEKT
23.03 PAPERBRAKE ERROR
X43e
0V
+5V
PBRCLOCK L-H
PBRCLOCK L-L
1
2
3
4
X172
X171
FUC**
X175
FUM**
2a
2b
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Paper-Brake-Clock-Sensor
5V
FUM**
X176
X176
FUC**
X173
X173
FUP**
X184
X11d
D34/16 PBEXPAND-P
D34/18 PBREDUCE-P
D34/14 PBMOON-P
29a
29b
29c
4a
5a
4b
L298
PABRMO-H
PABRMO-R
rd
bla
Paper Brake Motor 24V
M
12V
24V

Figure 3-38. 23.03 Fusing Station Defect: Paperbrake Error

Error Byte: 19/10

Current Paper Width Not Attained by Vacuum Slide in Paper Brake Unit

Paper brake width is set according to the paper width in the paper transport. A 24V motor moves a slide in the paper brake; the paper brake's driving wheel features 16 magnets.
A hall sensor PCB generates the signals PBRCLOCK/L-H and PBRC LOCK/L-L when the slide is moved. For preparation or clean stop, the slide moves to the front until signal PBRAKEREF-L (=start position) is detected. Beginning with this Paper-Brake-Ref-Position, the slide is moved according to the paper width by xx signals PBRCLOCK.

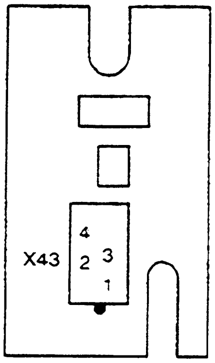
0 signals PBRCLOCK = minimum paper width 165 mm = Ref-Position
13 signals PBRCLOCK = paper width 250 mm
31 signals PBRCLOCK = paper width 375 mm
43 signals PBRCLOCK = maximum paper width 457 mm

An error message results when the slide is activated longer than 5 seconds during its movement in the paper brake from the Paper-Brake-Ref-Position to the nominal position. With a maximum paper width of 457 mm, the slide movement from Ref-Position to nominal position takes approximately 2 - 3 seconds. A friction clutch is installed between the motor axle and clock/drive wheel of the slide. When this friction clutch is defective or the slide is stiff or stuck, the motor may run but no signals PBRCLOCK are generated.

The internal resistance of the paper brake motor is approximately 12 Ω.

Possible Error Causes

- Line error (short-circuit, line breakage, contact error at plug)
- Sensor PCB defective
- Controller PCB FUM** defective
- Connector PCB FUC** defective
- Power supply PCB FUP** defective
- Magnetic disk defective (magnet lost, magnet incorrectly fixed)
- Adjustment error (sensor PCB misadjusted)
- Failure of power transmission between paper brake motor and slide:
  - ☐ friction clutch misadjusted
  - ☐ slide is stuck
- 24V paper brake motor defective
- Lacking 24V DC voltage



23.04 Fusing Station Defect: Paperbrake Ref Error

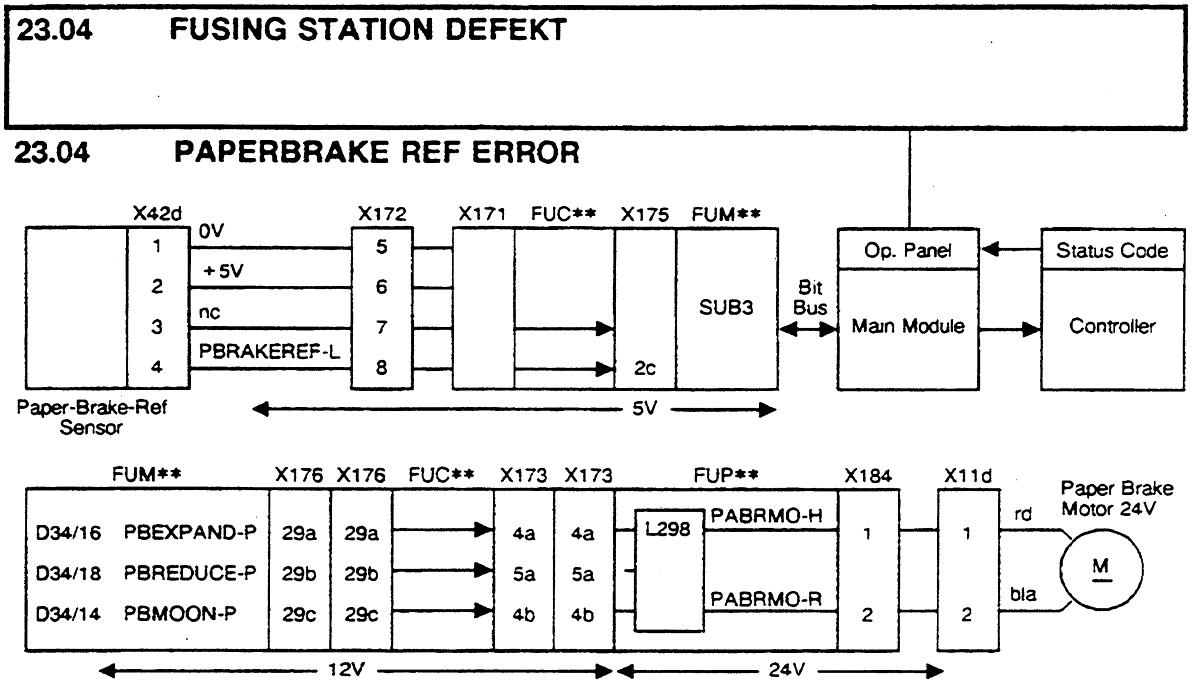

23.04 FUSING STATION DEFEKT
23.04 PAPERBRAKE REF ERROR
X42d
0V
+5V
nc
PBRAKEREF-L
1
2
3
4
X172
5
6
7
8
X171
FUC**
X175
FUM**
2c
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Paper-Brake-Ref Sensor
5V
FUM**
X176
X176
FUC**
X173
X173
FUP**
X184
X11d
D34/16 PBEXPAND-P
D34/18 PBREDUCE-P
D34/14 PBMOON-P
29a
29b
29c
4a
5a
4b
L298
PABRMO-H
PABRMO-R
rd
bla
Paper Brake Motor 24V
M
12V
24V

Figure 3-39. 23.04 Fusing Station Defect: Paperbrake Ref Error

Error Byte: 19/20

No Start Position in Paper Brake

The paper brake width is set according to the paper width in the paper transport. A 24V motor moves a slide in the paper brake. For preparation or a clean stop, the slide moves to the front (operator panel side) until the signal PBRAKEREF-L (=start position) is detected. Beginning with this start position, the corresponding paper width is set.

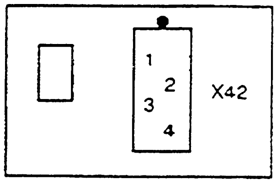
An error message results when the reference position is not attained 5 seconds after the paper brake motor has been activated.

The internal resistance of the paper brake motor is approximately 12 Ω.

Possible Error Causes

- Line error (short circuit, line breakage, contact error at plug)
- Sensor PCB defective
- Controller PCB FUM** defective
- Controller PCB FUC** defective
- Magnetic disk defective (magnet lost, magnet incorrectly fixed)
- Adjustment error (sensor PCB misadjusted)
- Slide feed belt torn

- Slide feed belt disengaged from drive wheel
- Lacking 24V DC voltage



23.05 Fusing Station Defect: Oilboost Error

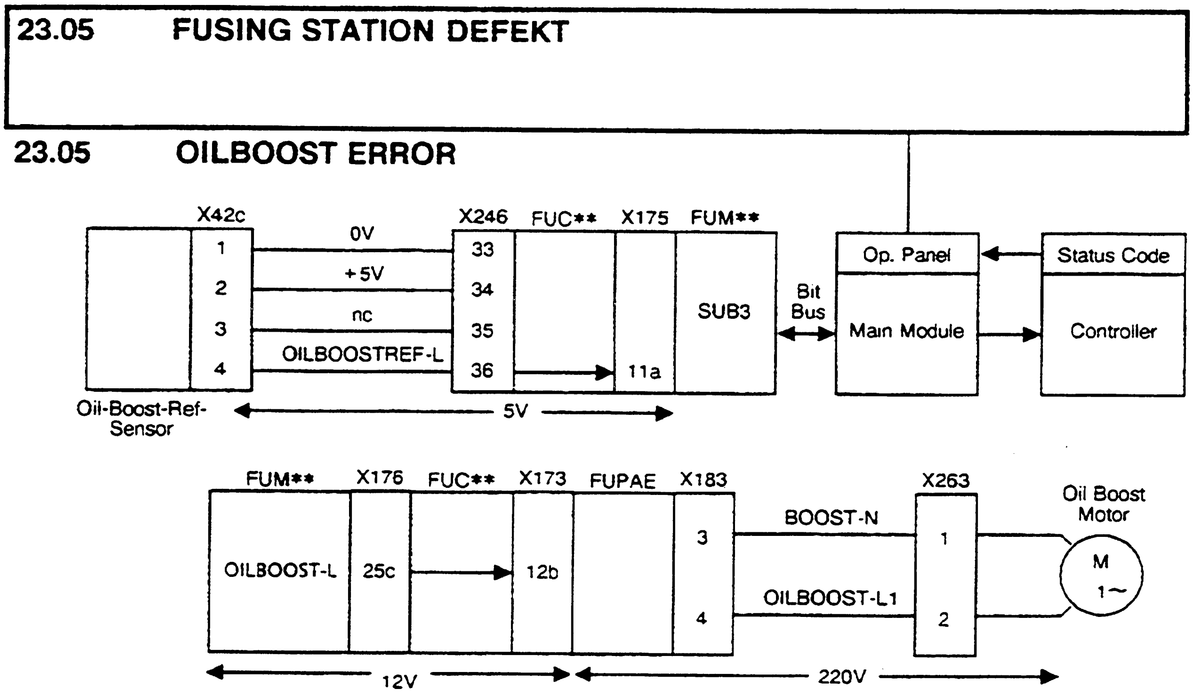

23.05 FUSING STATION DEFEKT
23.05 OILBOOST ERROR
X42c
0V
+5V
nc
OILBOOSTREF-L
1
2
3
4
Oil-Boost-Ref-Sensor
5V
X246
33
34
35
36
FUC**
X175
11a
FUM**
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
FUM**
OILBOOST-L
X176
25c
FUC**
X173
12b
FUPAE
X183
3
4
BOOST-N
OILBOOST-L1
X263
1
2
Oil Boost Motor
M
1~
12V
220V

Figure 3-40. 23.05 Fusing Station Defect: Oilboost Error

Error Byte: 23/08

Current Oiling Width Cannot Be Adjusted

The width of the fuser roller surface to be oiled is automatically adjusted to correspond to the paper width in the paper transport. A dosage wedge in the oiling pipe is driven by a 220V motor. The oil boost motor is activated during preparation and clean stop.

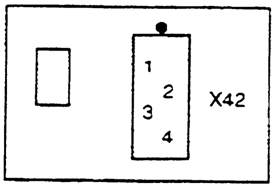
If the magnet reaches the hall sensor, the switching edge from +5V to 0V is detected by the processor PCB FUM** as the basic position. The minimal oiling width of 165 mm is now adjusted mechanically (22 holes are open). If the the maximum paper width of is 457 mm, the oil boost motor remains active for approximately 16 seconds after detection of the switching edge (all 65 holes are open).

An error message occurs when no switching edge has been detected after 80 seconds of activation of the oil boost motor.

Possible Error Causes

- Line error (short circuit, line breakage, contact error)
- Sensor PCB defective
- Magnet defective
- Dosage bar adjustment stiff
- Oil boost motor defective

- Power supply PCB FUPAE defective
- Connector PCB FUC** defective
- Controller PCB FUM** defective



Paper Width	Triggering Time of Oil Booster Motor After Detection of Switching Edge
165 mm	0 seconds
250 mm	4.8 seconds
375 mm	11.8 seconds
457 mm	16.3 seconds

23.06 Fusing Station Defect: Submodul Communication Error

23.06 FUSING STATION DEFEKT

23.06 SUBMODUL COMMUNICATION ERROR

Figure 3-41. 23.06 Fusing Station Defect: Submodul Communication Error

Error Byte: 23/10

Incorrect Communication on Processor PCB FUM**

The subprocessors do not acknowledge main processor commands. The error is reset by CHECK RESET.

Possible Error Causes

- Firmware Error
- Controller PCB FUM** defective

23.07 Fusing Station Defect: Cleaning Felt Motor Defect

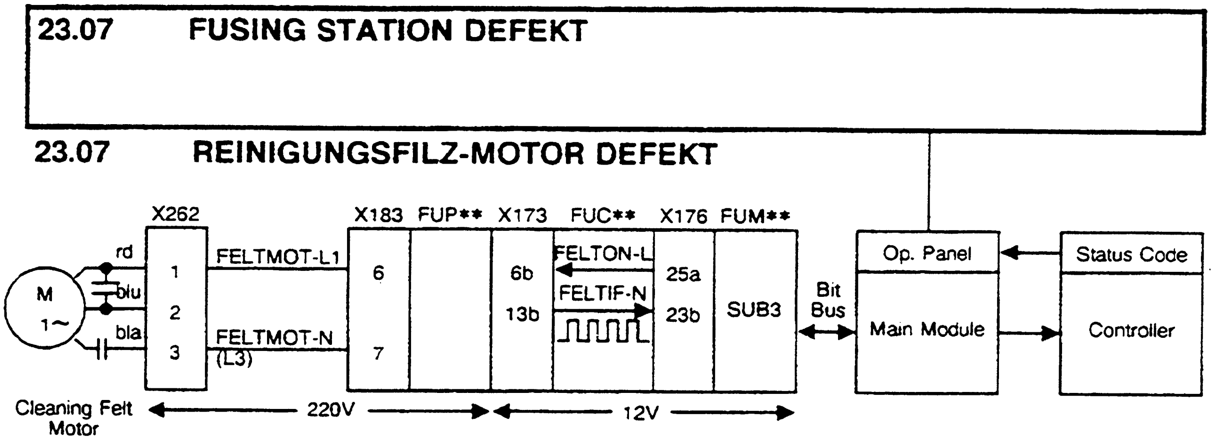

23.07 FUSING STATION DEFEKT
23.07 REINIGUNGSFILZ-MOTOR DEFEKT
X262
X183 FUP** X173 FUC** X176 FUM**
M
1~
rd
blu
bla
1
2
3
FELTMOT-L1
FELTMOT-N
(L3)
6
7
6b
13b
FELTON-L
FELTIF-N
25a
23b
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Cleaning Felt Motor
220V
12V

Figure 3-42. 23.07 Fusing Station Defect: Cleaning Felt Motor Defect

Error Byte: 20/20

Error in Load Circuit of Cleaning Felt Motor

On power supply PCB FUP**, the cleaning felt motor circuit features an optocoupler that generates a signal frequency (12V/50/60Hz) from the line frequency (11 0V/60Hz, 220V/50Hz). This signal frequency (FELTIF-N) is evaluated by the controller PCB FUM**. An error is generated when the cleaning felt motor is activated with signal FELTON-L and the controller PCB FUM** does not detect a signal frequency on signal line FELTIF-N.

Motor is activated ⇒ signal FELTON-L = 0V

Motor is not activated ⇒ signal FELTON-L = +12V

Possible Error Causes

- Line error (short circuit, line breakage, or contact error)
- Motor defective or not connected
- Power supply PCB FUP** defective
- Controller PCB FUM** defective
- Connector PCB FUC** defective

23.08 Fusing Station Defect: Stack Alignment Motor

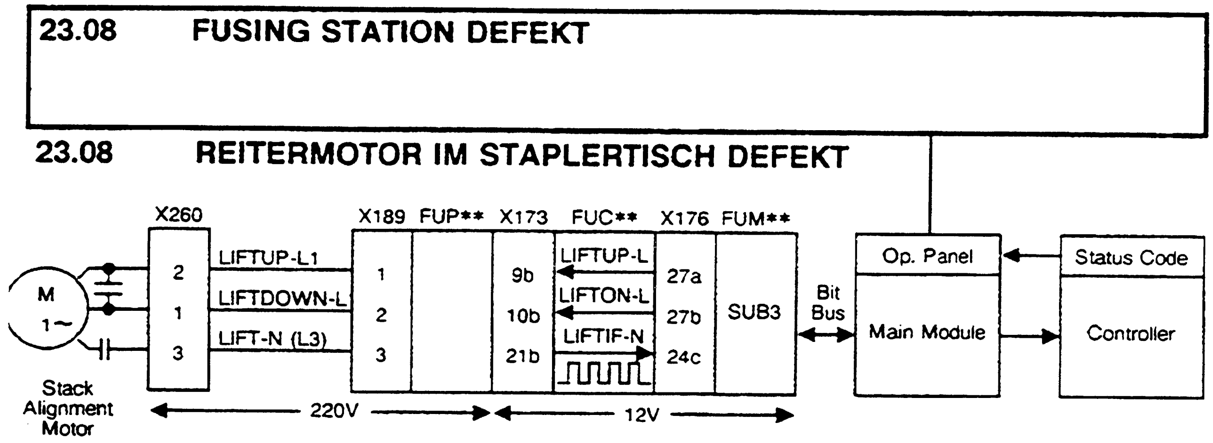

23.08 FUSING STATION DEFEKT
23.08 REITERMOTOR IM STAPLERTISCH DEFEKT
X260
X189 FUP** X173 FUC** X176 FUM**
M
1~
Stack Alignment Motor
2
1
3
LIFTUP-L1
LIFTDOWN-L
LIFT-N (L3)
1
2
3
9b
10b
21b
LIFTUP-L
LIFTON-L
LIFTIF-N
27a
27b
24c
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
220V
12V

Figure 3-43. 23.08 Fusing Station Defect: Stack Alignment Motor

Error Byte: 20/40

Error in Load Circuit of Stack Alignment Motor

On power supply PCB FUP**, the stack alignment motor circuit features an optocoupler that generates a signal frequency (12V/50/60Hz) from the line frequency (110V/60Hz, 220V/50Hz). This signal frequency (LIFTIF-N) is evaluated by the controller PCB FUM**. An error is generated when the stack alignment motor is activated with signals LIFTUP-L and LIFTON-L, and the controller PCB FUM** does not detect a signal frequency on signal line LIFTIF-N.

Stack alignment moves up ⇒ signal LIFTON-L
0V and LIFTUP-L = 0V
Stack alignment moves down ⇒ signal LIFTON-L = 0V and LIFTUP-L = +12V
Stack alignment does not move ⇒ signal LIFTON-L = +12V

Possible Error Causes

- Line error (short circuit, line breakage, or contact error)
- Motor defective or not connected
- Power supply PCB FUP** defective
- Controller PCB FUM** defective
- Connector PCB FUC** defective

24.00/24.01 Fusing Saddle Error

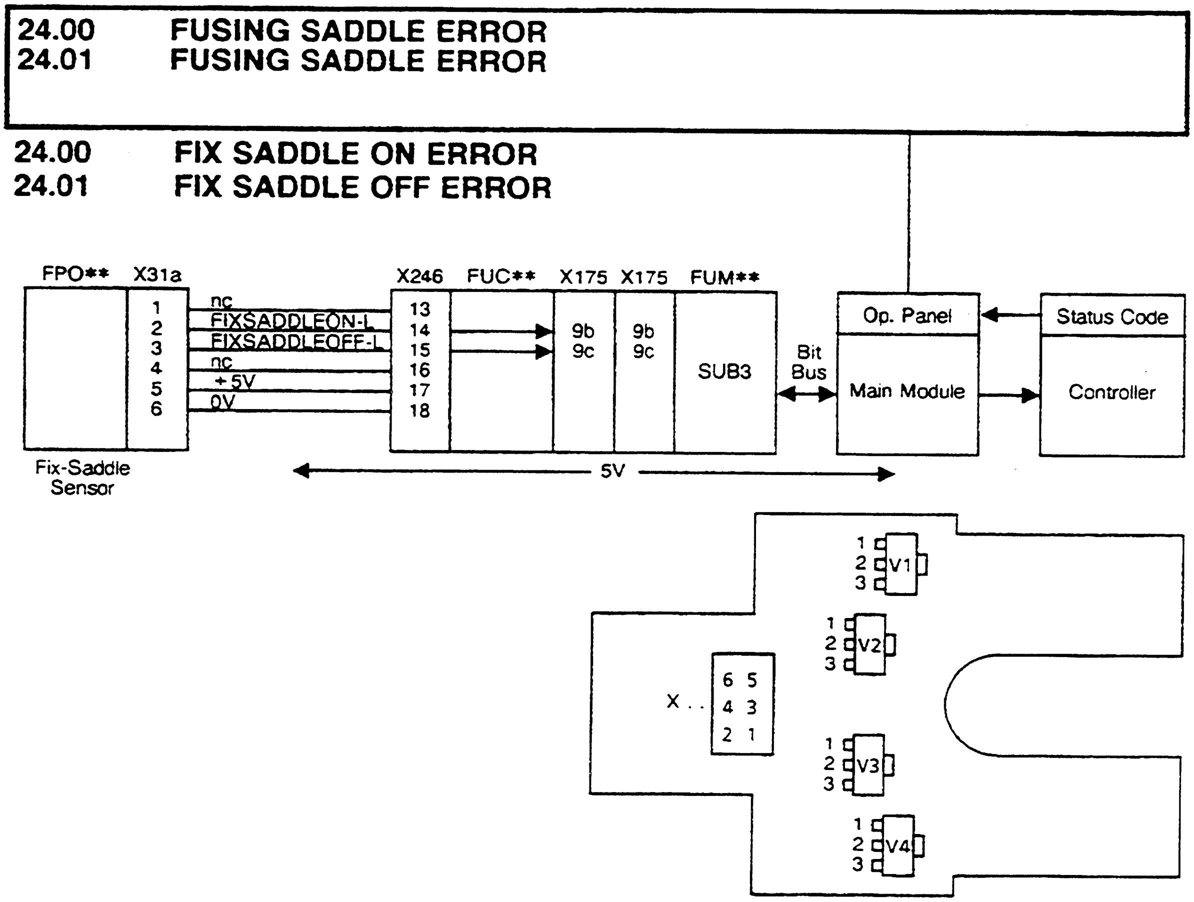

24.00 FUSING SADDLE ERROR
24.01 FUSING SADDLE ERROR
24.00 FIX SADDLE ON ERROR
24.01 FIX SADDLE OFF ERROR
FPO**
X31a
1
2
3
4
5
6
nc
FIXSADDLEON-L
FIXSADDLEOFF-L
nc
+5V
0V
X246
13
14
15
16
17
18
FUC**
X175
X175
9b
9c
9b
9c
FUM**
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Fix-Saddle Sensor
5V
X..
6 5
4 3
2 1
1
2
3
V1
V2
V3
V4

Figure 3-44. 24.00/24.01 Fusing Saddle Error

Error Byte: 18/80
Error Byte: 19/01

FIXSADDLEON or FIXSADDLEOFF Position is Not Detected

The fix saddle sensor (4 hall switches and 1 magnet; only 2 of the 4 hall switches are evaluated) monitors whether fuser saddle is swivelled on or off. The swivelled-off position (FIXSADOFF-L) is also the zero position for the stepper motor.

An Error message results when the FIXSADDLEON/-OFF position is not detected by the sensor before the stepper motor performs its last step.

Possible Error Causes

- Line error (short-circuit, line breakage, contact error)
- Sensor PCB defective
- Controller PCB FUM** defective
- Power supply PCB for stepper motors FUS** defective
- Connector PCB FUC** defective
- Defective magnetic disk (magnet lost, magnet incorrectly fixed)
- Adjustment error (sensor PCB misadjusted)
- Failure of power transmission between stepper motor and swivel shaft (mechanical link)
  - ☐ defective/loose toothed belt
  - ☐ loose sprocket wheels on stepper motor axle and swivel shaft
- Swivel mechanism stiff or stuck
- Foreign particle between fuser roller and pressure roller

25.00 Paper Jam Fusing Station

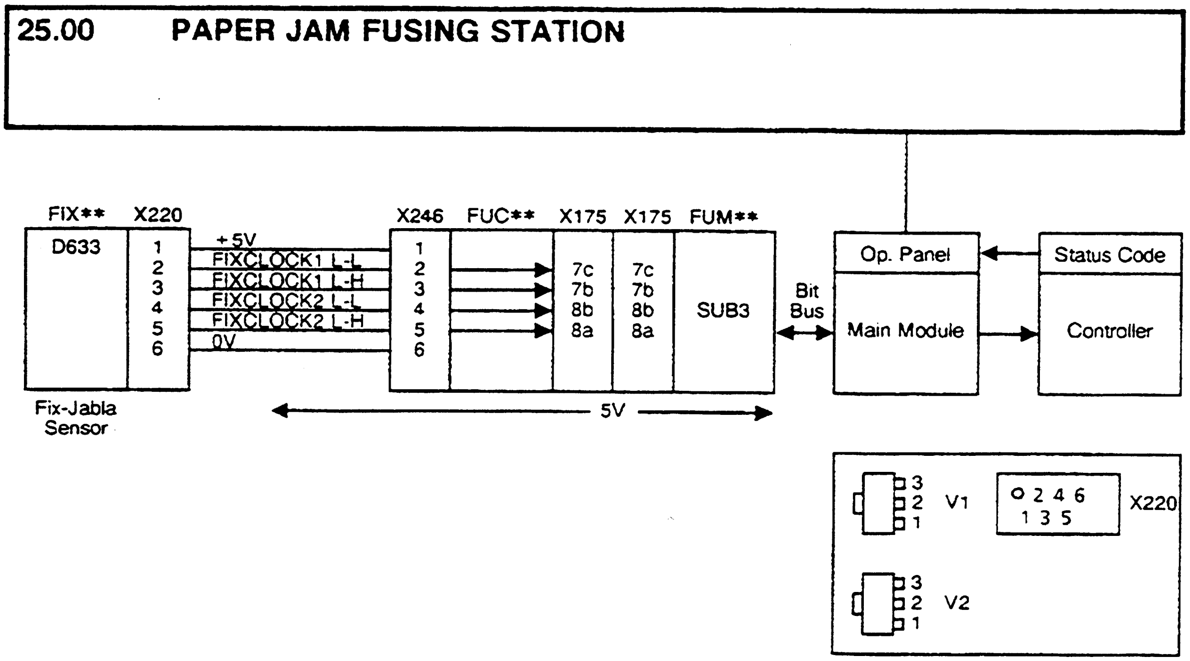

25.00 PAPER JAM FUSING STATION
FIX** X220
D633
1 2 3 4 5 6
+5V
FIXCLOCK1 L-L
FIXCLOCK1 L-H
FIXCLOCK2 L-L
FIXCLOCK2 L-H
0V
Fix-Jabla Sensor
X246 FUC** X175 X175 FUM**
7c 7b 8b 8a
SUB3
Bit Bus
5V
Op. Panel
Main Module
Status Code
Controller
3 2 1 V1
3 2 1 V2
0 2 4 6
1 3 5
X220

Figure 3-45. 25.00 Paper Jam Fusing Station

Error Byte: 18/08

No Paper Motion Between Fuser Roller and Roller Saddle

Paper jam monitoring between fuser station and stacker: After fusing, the paper is transported via roller saddle to the stacker. The last but one roller of the roller saddle is connected with a magnetic disk (2 magnets) rotating with the paper movement. This rotational movement is monitored by two hall switches on the sensor PCB. This makes it possible to monitor not only the paper speed, but also the direction of the paper motion. If paper is wrapped around the pressure roller or the fuser roller, paper is torn back from the stacker to the fuser station. If the pulse interval is greater than xx ms or the pulse sequence is incorrect, an error message and a hard stop results; fuser roller and paper transport are stopped, roller saddle is swivelled off, and the heating elements are switched off.

This error is also generated when the printer is started (with READY key) and the paper edge sensor does not detect any paper in the stacker.

Possible Error Causes

- Paper torn
- Paper is wrapped around the pressure roller
- Paper is wrapped around the fuser roller
- Roller at roller saddle is stiff
- Roller at roller saddle is not rotating as stacker pull strength is too small

- Line error (short-circuit, line breakage, contact error)
- Controller PCB FUM** defective
- Connector PCB FUC** defective
- Defective magnetic disk (magnet lost, magnet incorrectly fixed)
- Adjustment error (sensor PCB misadjusted)
- Sensor PCB defective
- No paper in the stacker at print start
- Paper edge sensor defective after paper insert

26.00 Stacker Swing Error

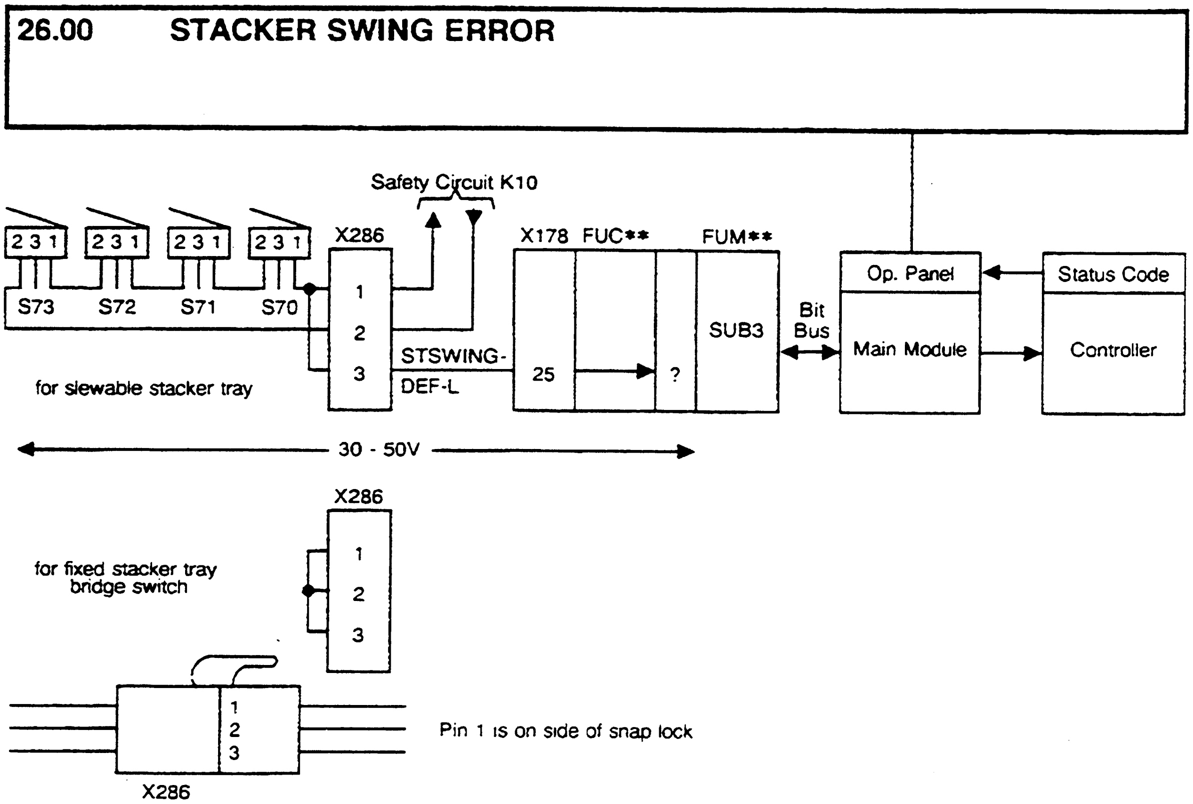

26.00 STACKER SWING ERROR
Safety Circuit K10
2 3 1
2 3 1
2 3 1
2 3 1
S73
S72
S71
S70
X286
1
2
3
STSWING-
DEF-L
X178
FUC**
FUM**
25
?
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
for slewable stacker tray
30 - 50V
X286
for fixed stacker tray bridge switch
1
2
3
1
2
3
X286
Pin 1 is on side of snap lock

Figure 3-46. 26.00 Stacker Swing Error

Error Byte: 23/40

Safety Switch at Slewable Stacker Tray Actuated

If a slewable stacker tray is installed, the safety switches in the stacker tray are evaluated by controller PCB FUM**. When a safety switch is actuated, contactor K10 becomes inactive and an error message is generated. The error can be reset by CHECK RESET. The printer begins with a power-up phase.

If a fixed stacker tray is installed, plug X286 is bridged.

Possible Error Causes

- Safety strip was actuated
- Microswitch defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, contact error)
- Controller PCB FUM** defective
- Connector PCB FUC** defective

27.00 Heater Cover Open

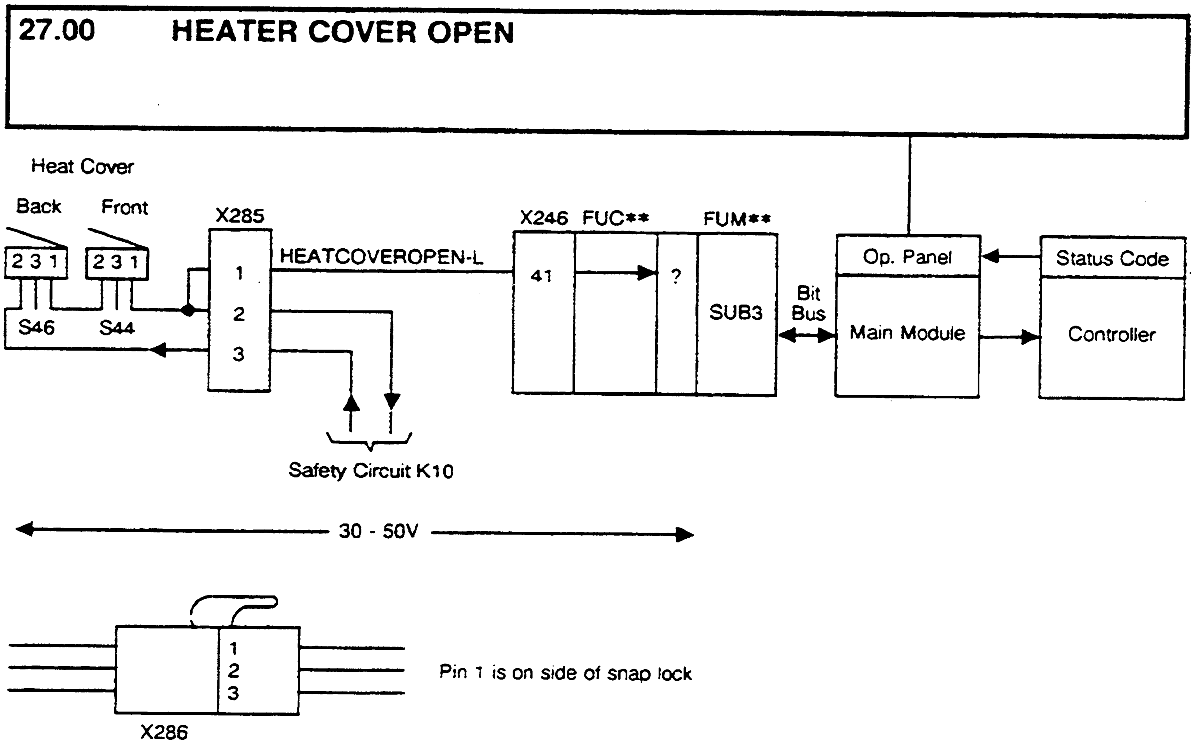

27.00 HEATER COVER OPEN
Heat Cover
Back
Front
2 3 1
2 3 1
S46
S44
X285
1
2
3
HEATCOVEROPEN-L
X246
FUC**
FUM**
41
?
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Safety Circuit K10
30 - 50V
1
2
3
X286
Pin 1 is on side of snap lock

Figure 3-47. 27.00 Heater Cover Open

Error Byte: 21/10

A Cover Door at the Fuser Station is Open

If the front or rear cover door at the fuser station is opened:

1. The 30V safety circuit is opened and the contactor K10 becomes inactive; the +5V power supply remains active.
2. Submodule 3 detects the open door and causes the status message `27.00 HEATER COVER OPEN`.

Possible Error Causes

- Microswitch defective, misadjusted, or connected incorrectly
- Line error (short-circuit, line breakage, contact error)
- Controller PCB FUM** defective
- Connector PCB FUC** defective

28.00 Drift Control Error: Drift Motor Sensor Defect

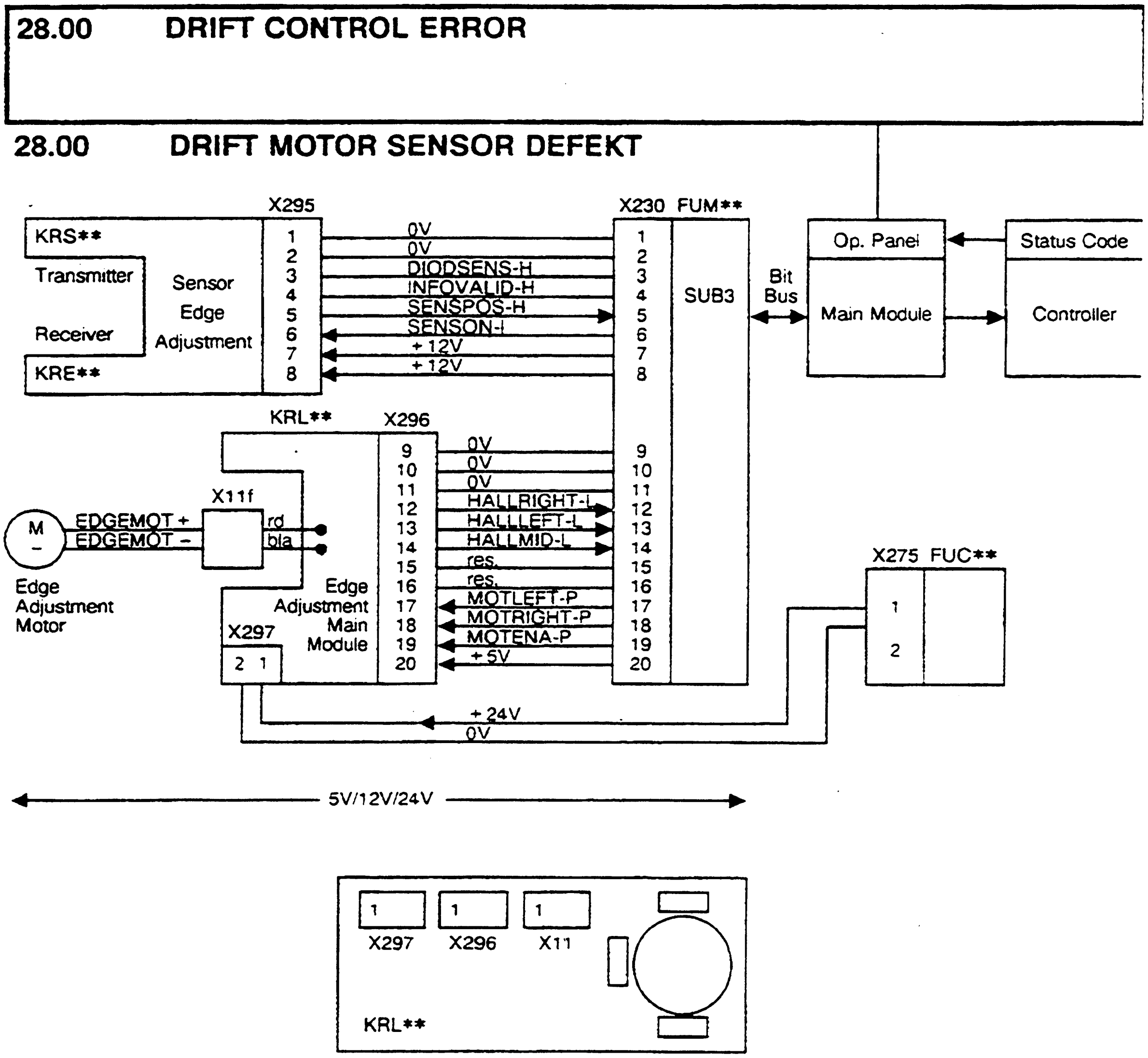

28.00 DRIFT CONTROL ERROR
28.00 DRIFT MOTOR SENSOR DEFEKT
X295
X230 FUM**
KRS**
Transmitter
Receiver
KRE**
Sensor
Edge
Adjustment
1 2 3 4 5 6 7 8
0V
0V
DIODSENS-H
INFOVALID-H
SENSPOS-H
SENSON-I
+12V
+12V
SUB3
Bit
Bus
Op. Panel
Main Module
Status Code
Controller
KRL**
X296
X11f
M
EDGEMOT +
EDGEMOT −
rd
bla
Edge
Adjustment
Motor
Edge
Adjustment
Main
Module
X297
2 1
9 10 11 12 13 14 15 16 17 18 19 20
0V
0V
0V
HALLRIGHT-L
HALLLEFT-L
HALLMID-L
res.
res.
MOTLEFT-P
MOTRIGHT-P
MOTENA-P
+5V
X275 FUC**
1
2
+24V
0V
5V/12V/24V
1
1
1
X297
X296
X11
KRL**

Figure 3-48. 28.00 Drift Control Error: Drift Motor Sensor Defect

Error Byte: 22/10

Defective Sensor at Edge Adjustment Main Module

During preparation a search cycle is performed. This checks the position signals HALLRIGHT-L, HALLLEFT-L, and HALLMID-L. Error message 28.00 `DRIFT CONTROL ERROR` results when HALLRIGHT-L or HALLLEFT-L are not detected during the search cycle; the edge adjustment then tries to position to HALLMID-L. If HALLMID-L is not detected, the edge adjustment motor stops after 4 seconds and the error message 28.01 `DRIFT CONTROL ERROR` is displayed.

Possible Error Causes

- Edge adjustment main module KRL** defective
- Clearance of hall sensors to magnets too big
- Line error (short-circuit, line breakage, contact error)
- Controller PCB FUM** defective

28.01 Drift Control Error: Motor Reference Check Timeout

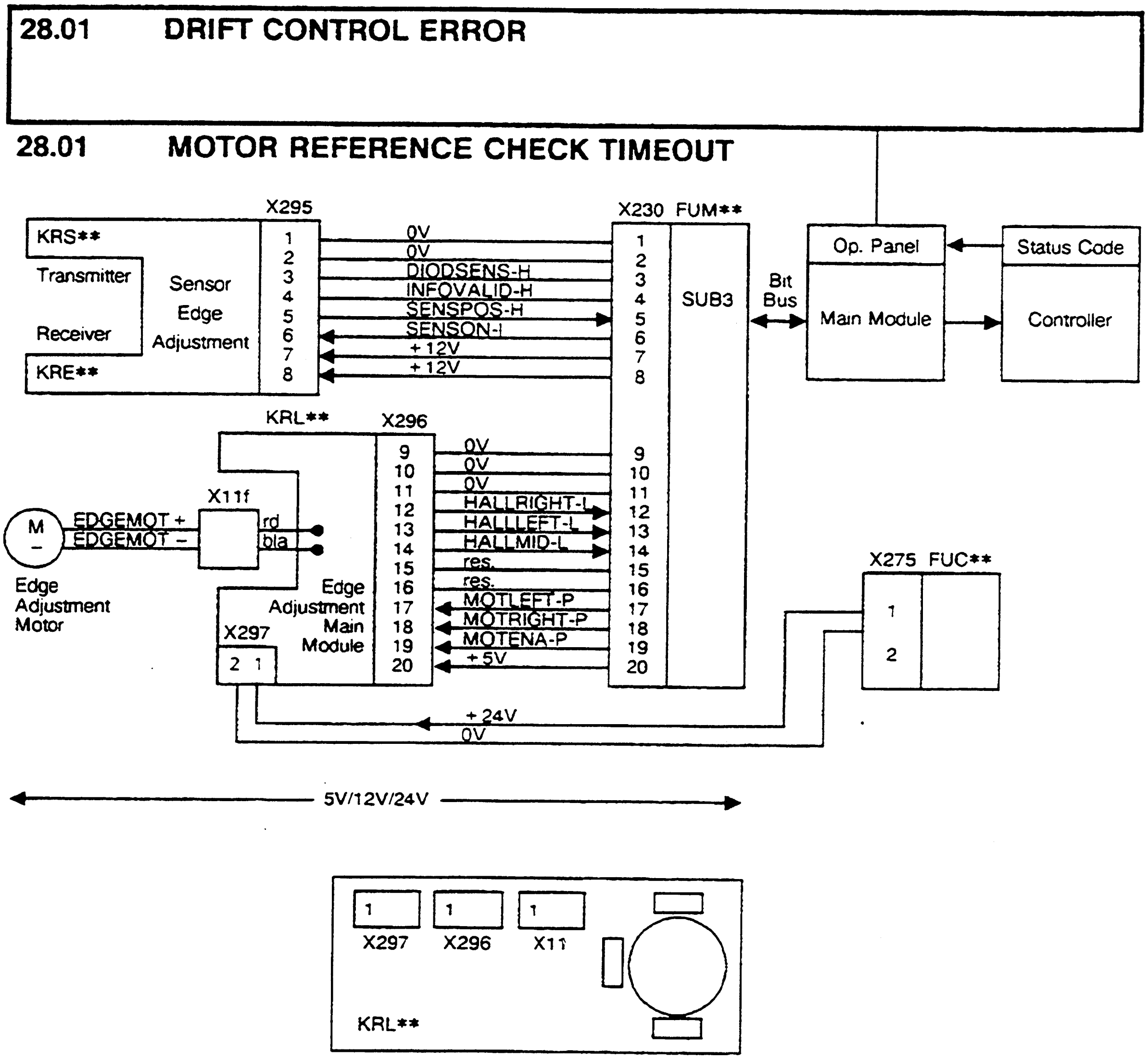

28.01 DRIFT CONTROL ERROR
28.01 MOTOR REFERENCE CHECK TIMEOUT
X295
X230 FUM**
KRS**
Transmitter
Receiver
KRE**
Sensor
Edge
Adjustment
0V
0V
DIODSENS-H
INFOVALID-H
SENSPOS-H
SENSON-I
+12V
+12V
SUB3
Bit
Bus
Op. Panel
Main Module
Status Code
Controller
KRL**
X296
X11f
M
EDGEMOT +
EDGEMOT −
rd
bla
Edge
Adjustment
Motor
Edge
Adjustment
Main
Module
X297
2 1
0V
0V
0V
HALLRIGHT-L
HALLLEFT-L
HALLMID-L
res.
res.
MOTLEFT-P
MOTRIGHT-P
MOTENA-P
+5V
X275 FUC**
1
2
+24V
0V
5V/12V/24V
X297
X296
X11
KRL**

Figure 3-49. 28.00 Drift Control Error: Motor Reference Check Timeout

Error Byte: 22/20

During preparation, a search cycle is performed. This checks the position signals HALLRIGHT-L, HALLLEFT-L, and HALLMID-L.

Error message 28.01 `DRIFT CONTROL ERROR` results when no position is detected after 4 seconds of search cycle.

Possible Error Causes

- Line error (short-circuit, line breakage, contact error)
- Edge adjustment main module KRL** defective
- Defective mechanical link between motor and disk
- Motor defective
- Lacking voltage of 5V/12V/24V
- Defective magnetic disk (magnet lost, magnet incorrectly fixed)
- Clearance of hall sensors to magnets too big
- Connector PCB FUC** (+24V/0V) defective

28.03 Drift Control Error: Paper Drift Sensor Defect

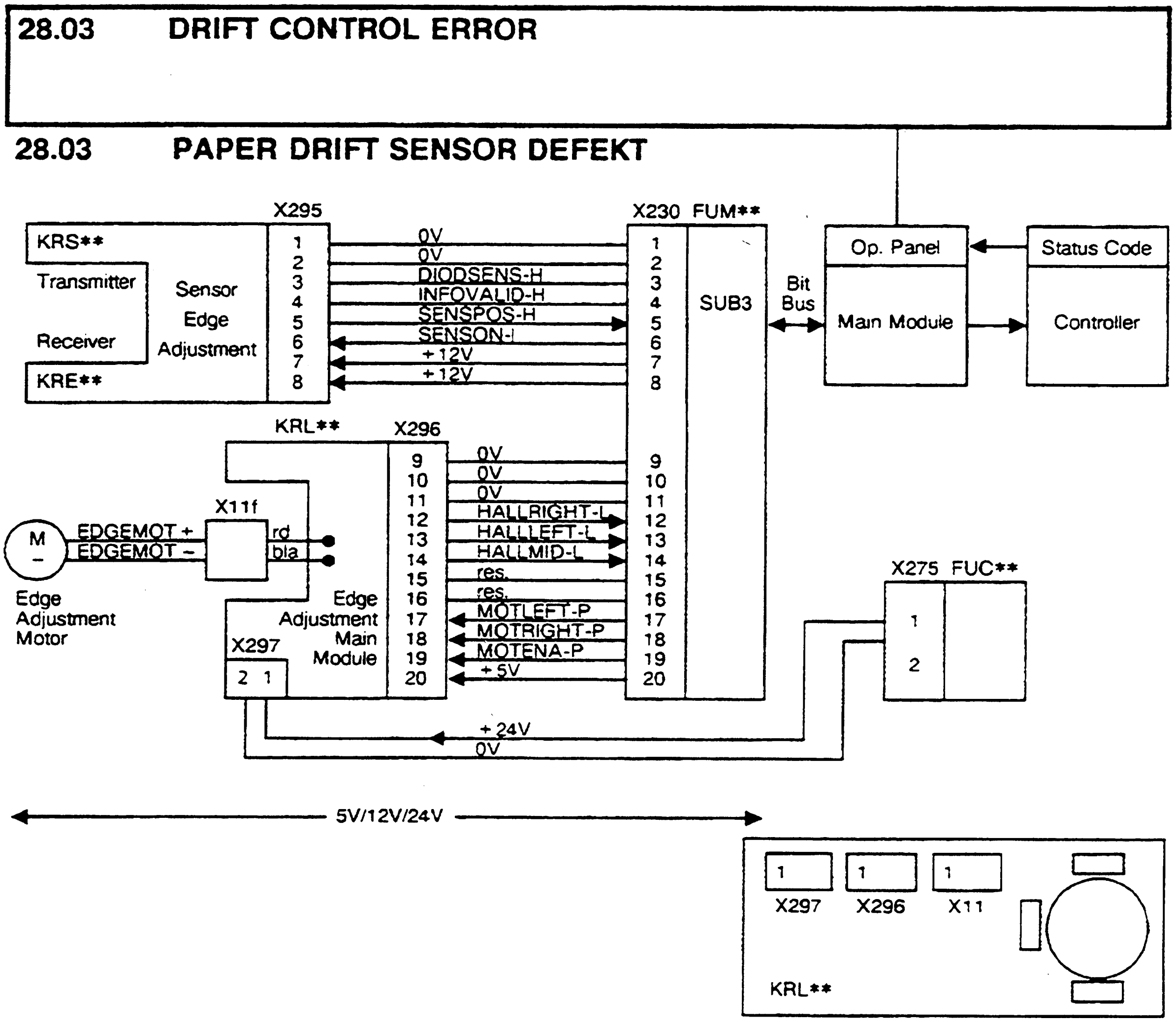

28.03 DRIFT CONTROL ERROR
28.03 PAPER DRIFT SENSOR DEFEKT
X295
X230 FUM**
KRS**
Transmitter
Receiver
KRE**
Sensor
Edge
Adjustment
1 2 3 4 5 6 7 8
0V
0V
DIODSENS-H
INFOVALID-H
SENSPOS-H
SENSON-L
+12V
+12V
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
KRL**
X296
9 10 11 12 13 14 15 16 17 18 19 20
0V
0V
0V
HALLRIGHT-L
HALLLEFT-L
HALLMID-L
res.
res.
MOTLEFT-P
MOTRIGHT-P
MOTENA-P
+5V
X11f
M
EDGEMOT +
EDGEMOT −
rd
bla
Edge Adjustment Motor
Edge Adjustment Main Module
X297
2 1
X275 FUC**
1
2
+24V
0V
5V/12V/24V
X297
X296
X11
KRL**

Figure 3-50. 28.03 Drift Control Error: Paper Drift Sensor Defect

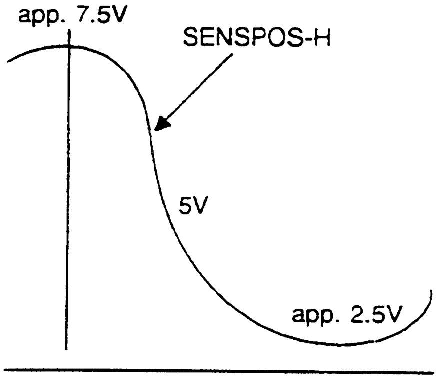
Error Byte: 22/80

This error message results when analog signal SENSPOS-H (= approximately 5V) is not detected during preparation.

The signal SENSON-L switches on the LED (transmitter). The analog signal SENSPOS-H from the receiver (2.5V to 7.5V) is evaluated on controller PCB FUM** and the motor is activated correspondingly with signals MOTLEFT-P, MOTRIGHT-P, and MOTENA-P.

Possible Error Causes

- Line error (short-circuit, line breakage, contact error)
- Edge adjustment sensor (KRS** and KRE**) defective
- Controller PCB FUM** defective



Characteristic Curve of Sensor

29.00 Feltunit Unlocked

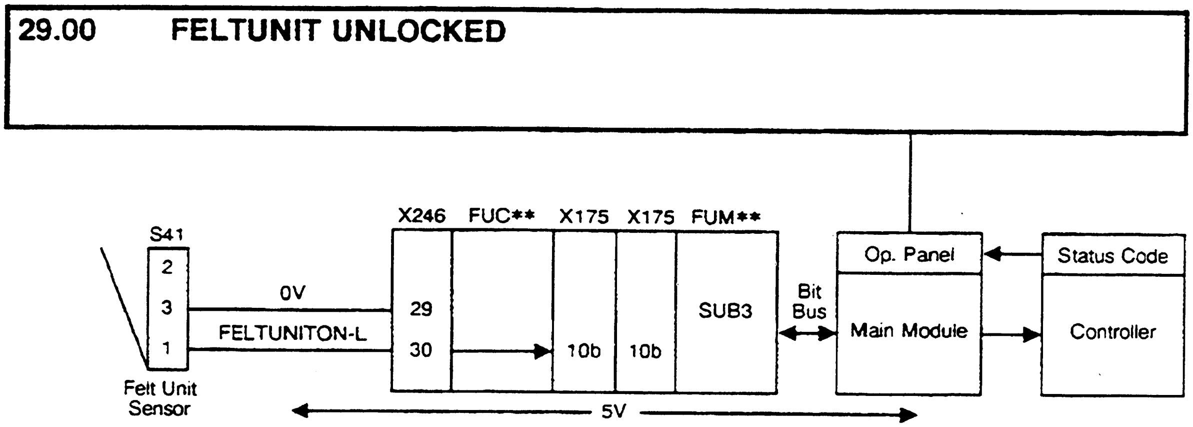

29.00 FELTUNIT UNLOCKED
S41
2
3
1
Felt Unit Sensor
0V
FELTUNITON-L
X246
FUC**
X175
X175
FUM**
29
30
10b
10b
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V

Figure 3-51. 29.00 Feltunit Unlocked

Error Byte: 21/40

Swivelling Oiling Station with Cleaning Felt Mounting is Open

The felt unit sensor (microswitch S41) reports whether the oiling station is swivelled on or off to submodule 3.

Oiling station swivelled on ⇒ switch S41 actuated
⇒ signal FELTUNITON-L = 0V
Oiling station swivelled off ⇒ switch S41 not actuated
⇒ signal FELTUNITON-L = +5V

If the oiling station is opened during Standby, the fuser roller is stopped for safety reasons and the heating is switched off; the sensor bar above the fuser roller may now be swivelled off.

If the oiling station is opened during Print or Eject, the printer performs a hard stop, that is, the fuser roller is stopped and the heating is switched off. After closing the oiling station, the heating is switched on again and the fuser roller reaches standby speed as soon as the temperature sensors sense a temperature above approximately 80°C.

If the oiling station is closed, the sensor bar above the fuser roller cannot be swivelled off (check mechanical lock).

Possible Error Causes

- Oiling station is swivelled off
- Microswitch defective, misadjusted, or connected incorrectly (relay 1 - 3)
- Line error (short-circuit, line breakage, contact error at plug)
- Controller PCB FUM** defective
- Connector PCB FUC** defective

2A.00 Exhauster Unlocked

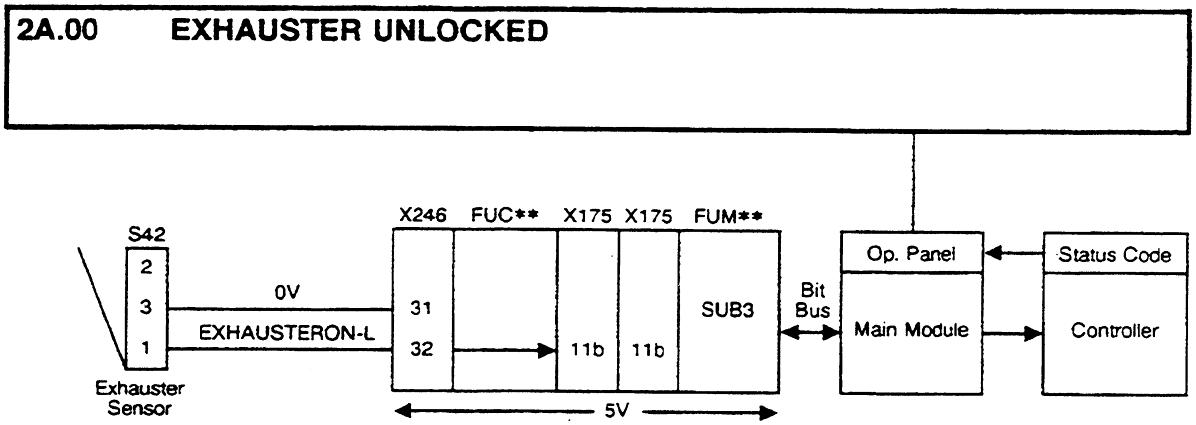

2A.00 EXHAUSTER UNLOCKED
S42
2
3
1
Exhauster Sensor
0V
EXHAUSTERON-L
X246
FUC**
X175
X175
FUM**
31
32
11b
11b
SUB3
5V
Bit Bus
Op. Panel
Main Module
Status Code
Controller

Figure 3-52. 2A.00 Exhauster Unlocked

Error Byte: 21/80 not yet realized

Swivelling Exhauster Hood Not Swivelled On

The exhauster sensor (microswitch S42) monitors whether the exhauster hood is swivelled on or off. When the exhauster hood is swivelled on, the microswitch is actuated; that is, if the signal is low, the exhauster hood is swivelled on. Printing is only possible if the exhauster hood is swivelled on.

```
Swivelled on:       S42/3   =   0V
                       /1   =   0V
Swivelled off:      S42/3   =   0V
                       /1   =  +5V
```

Possible Error Causes

- Exhauster hood is swivelled off
- Microswitch defective
- Microswitch misadjusted (adjustment error)
- Microswitch connected incorrectly (relay 1 - 3)
- Line error (short-circuit, line breakage, contact error at plug)
- Controller PCB FUM** defective
- Connector PCB FUC** defective

2B.00 Rollsaddle Unlocked

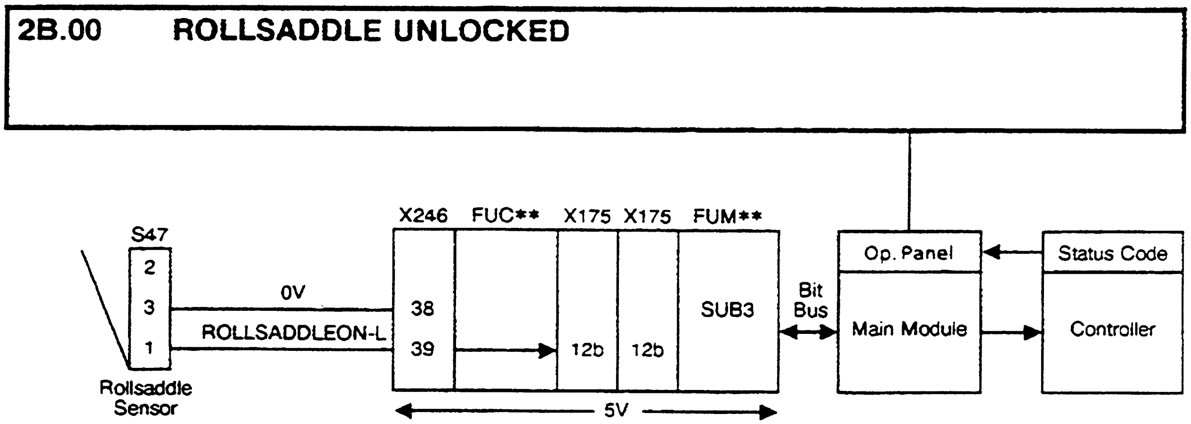

2B.00 ROLLSADDLE UNLOCKED
S47
2
3
1
Rollsaddle Sensor
0V
ROLLSADDLEON-L
X246
FUC**
X175
X175
FUM**
38
39
12b
12b
SUB3
5V
Bit Bus
Op. Panel
Main Module
Status Code
Controller

Figure 3-53. 2B.00 Rollsaddle Unlocked

Error Byte: 22/01

Swivelling Roller Saddle Not Swivelled On

The rollsaddle sensor (microswitch S47) monitors whether the roller saddle is swivelled on or off. When the roller saddle is swivelled on, the microswitch is actuated; that is, if the signal is low, the roller saddle is swivelled on.

```
Swivelled on:      S47/3  =   0V
                      /1  =   0V
Swivelled off:     S47/3  =   0V
                      /1  =  +5V
```

Possible Error Causes

- Roller saddle swivelled off
- Microswitch defective
- Microswitch misadjusted (adjustment error)
- Microswitch connected incorrectly (relay 1 - 3)
- Line error (short-circuit, line breakage, contact error at plug)
- Controller PCB FUM** defective
- Connector PCB FUC** defective

2C.00 Last Stack Outside

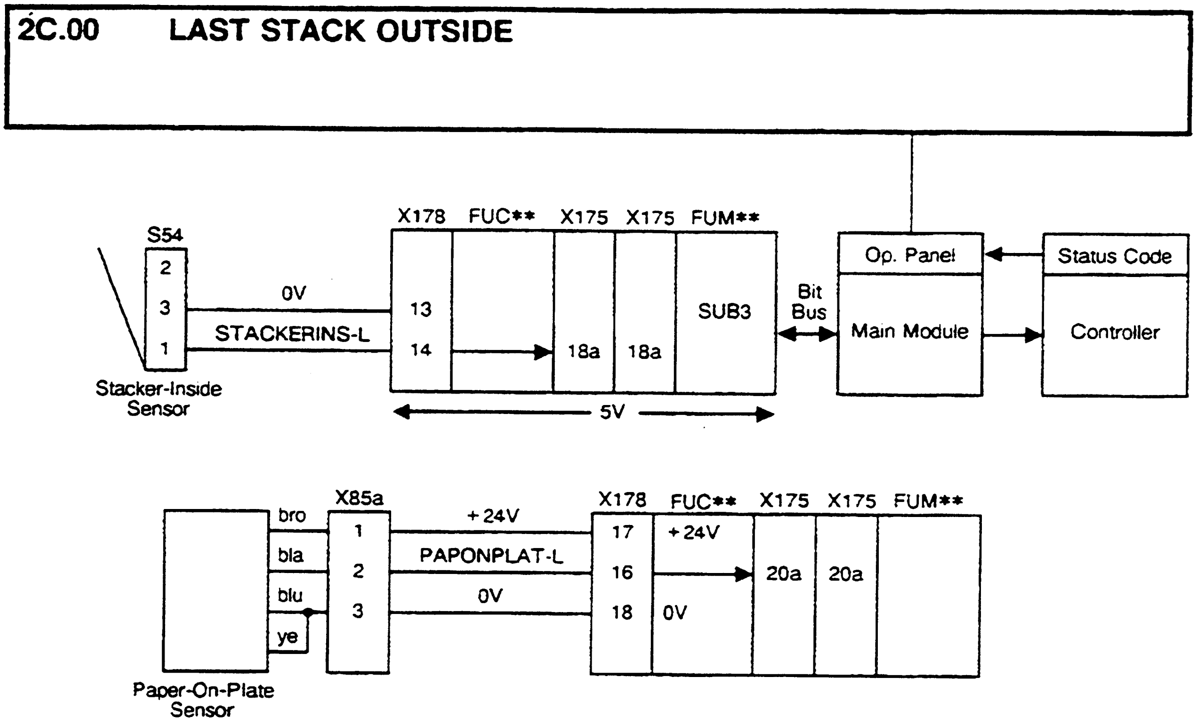

2C.00 LAST STACK OUTSIDE
S54
2
3
1
0V
STACKERINS-L
Stacker-Inside Sensor
X178
FUC**
X175
X175
FUM**
13
14
18a
18a
SUB3
5V
Bit Bus
Op. Panel
Main Module
Status Code
Controller
X85a
bro
bla
blu
ye
1
2
3
+24V
PAPONPLAT-L
0V
X178
FUC**
X175
X175
FUM**
17
16
18
+24V
0V
20a
20a
Paper-On-Plate Sensor

Figure 3-54. 2C.00 Last Stack Outside

Error Byte: 17/80 not yet realized

Stacker Table Swivelled Out with Paper Stack on It

During the paper input cycle, the stacker table is swivelled out with the paper stack on it. The stacker-inside sensor has not been activated and the paper-on-plate sensor has been activated.

Stacker-inside sensor = microswitch S54 (relay)

Paper-on-plate sensor = capacitive sensor

Possible Error Causes

- Stacker table is swivelled out with paper stack on it
- Paper-on-plate sensor defective
- Microswitch defective
- Microswitch misadjusted (adjustment error)
- Microswitch connected incorrectly (relay 1 - 3)
- Line error (short-circuit, line breakage, contact error at plug)
- Controller PCB FUM** defective
- Connector PCB FUC** defective

2D.00 Last Stack Inside

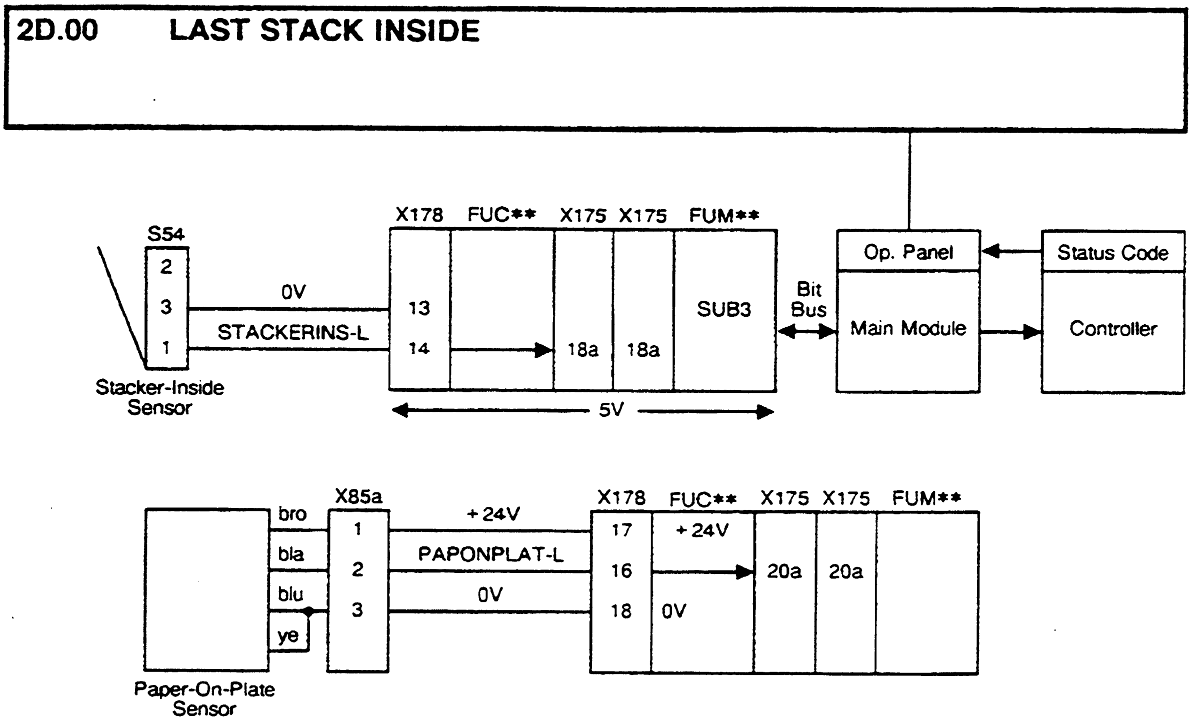

2D.00 LAST STACK INSIDE
S54
2
3
1
0V
STACKERINS-L
Stacker-Inside Sensor
X178
FUC**
X175
X175
FUM**
13
14
18a
18a
SUB3
5V
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Paper-On-Plate Sensor
bro
bla
blu
ye
X85a
1
2
3
+24V
PAPONPLAT-L
0V
X178
FUC**
X175
X175
FUM**
17
16
18
+24V
0V
20a
20a

Figure 3-55. 2D.00 Last Stack Inside

Error Byte: 17/20 not yet realized

Stacker Table Swivelled In with Paper Stack on It

During the paper input cycle, the stacker table is swivelled in with the paper stack on it. The Stacker-inside sensor and Paper-on-plate sensor have been activated or paddlewheel pulses LEFT and/or RIGHT are lacking while the stacker upper part is moved downwards during the paper input cycle or after switching on.

Stacker-inside sensor = microswitch S54 (relay)

Paper-on-plate sensor = capacitive sensor

Possible Error Causes

- Stacker table is swivelled in with paper stack on it
- Paper-on-plate sensor defective
- Microswitch defective
- Microswitch misadjusted (adjustment error)
- Microswitch connected incorrectly (relay 1 - 3)
- Line error (short-circuit, line breakage, contact error at plug)
- Controller PCB FUM** defective
- Connector PCB FUC** defective

2E.00 Clean Paperedge Sensor

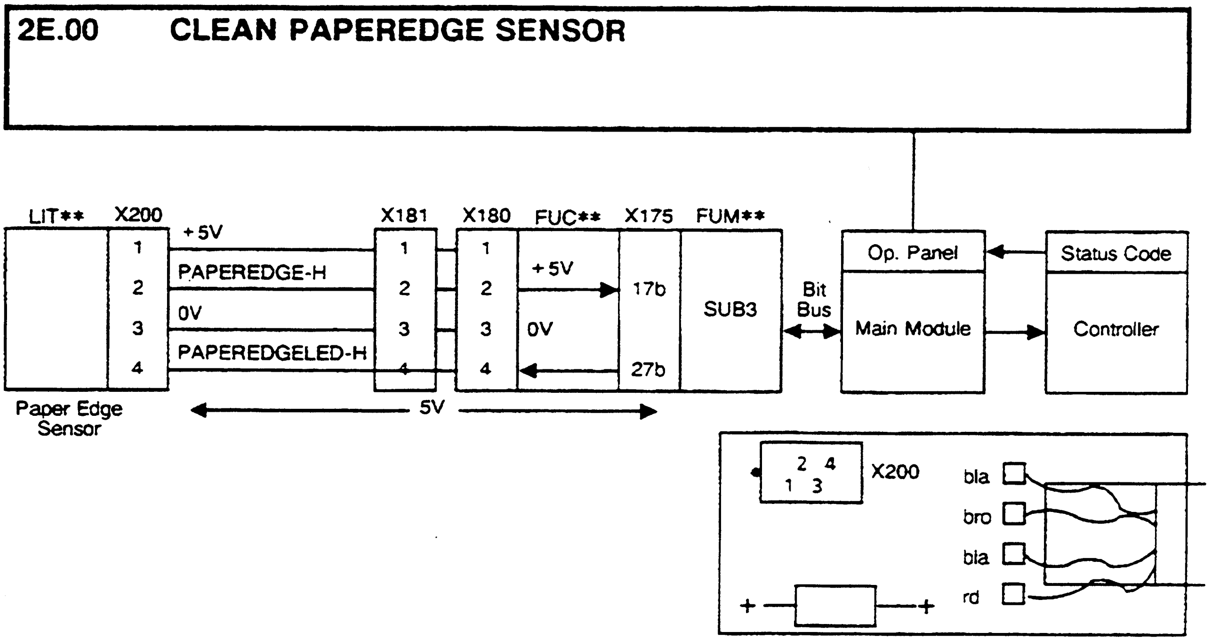

2E.00 CLEAN PAPEREDGE SENSOR
LIT**
X200
+5V
PAPEREDGE-H
0V
PAPEREDGELED-H
1
2
3
4
X181
X180
FUC**
+5V
0V
X175
17b
27b
FUM**
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Paper Edge Sensor
5V
2 4
1 3
X200
bla
bro
bla
rd
+
+

Figure 3-56. 2E.00 Clean Paperedge Sensor

Error Byte: 17/40

Paper Edge Sensor Soiled

The paper edge sensor (light barrier) monitors entry of the paper in the stacker during paper insert. Three seconds after the sensor has been activated, the paper insert phase is terminated. The sensor is adjusted and evaluated by a self-monitoring routine. With increased aging and soiling of the sensor, the LED current is automatically adapted. The error message results if the LED current cannot be increased further (above 40 mA) to compensate for a sensor output voltage drop to 3.5V.

Paper between sensor and mirror	⇒	PAPEREDGE-H	=	3.5 - 4.5V
No paper between sensor and mirror	⇒	PAPEREDGE-H	=	approximately 0.5V
Signal PAPEREDGELED-L for new and clean sensor	⇒		=	approximately 3.5V

When opening the paper loading rocker after paper end, the printer does not enter the paper insert phase if

- the sensor is heavily soiled
- the sensor is defective
- paper is between the sensor and mirror.

Sensor test:

a. Switch on printer with paper at paper edge sensor.

b. After search cycle of transfer corotron slide (paper width measurement), press simultaneously keys READY, STOP, and EJECT in the stacker operator panel.

The three LEDs above the keys light up and the paper edge sensor is adjusted.

c. Preparation is interrupted and error message `2E.00 CLEAN PAPEREDGE SENSOR` is displayed in the operator panel as the sensor is covered with paper.

d. Switch off printer and remove paper from upper part of stacker.

e. Switch on printer (sensor check starts automatically).

If the sensor is clean/not defective, preparation is not interrupted.

Possible Error Causes

- Sensor not within operating range (ageing, soiling, misadjustment)
- Sensor not aligned
- Sensor or mirror soiled
- Sensor PCB defective
- Line error (short-circuit, line breakage, contact error at plug)
- Controller PCB FUM** defective
- Connector PCB FUC** defective

2F.00 Thermofuse Blown

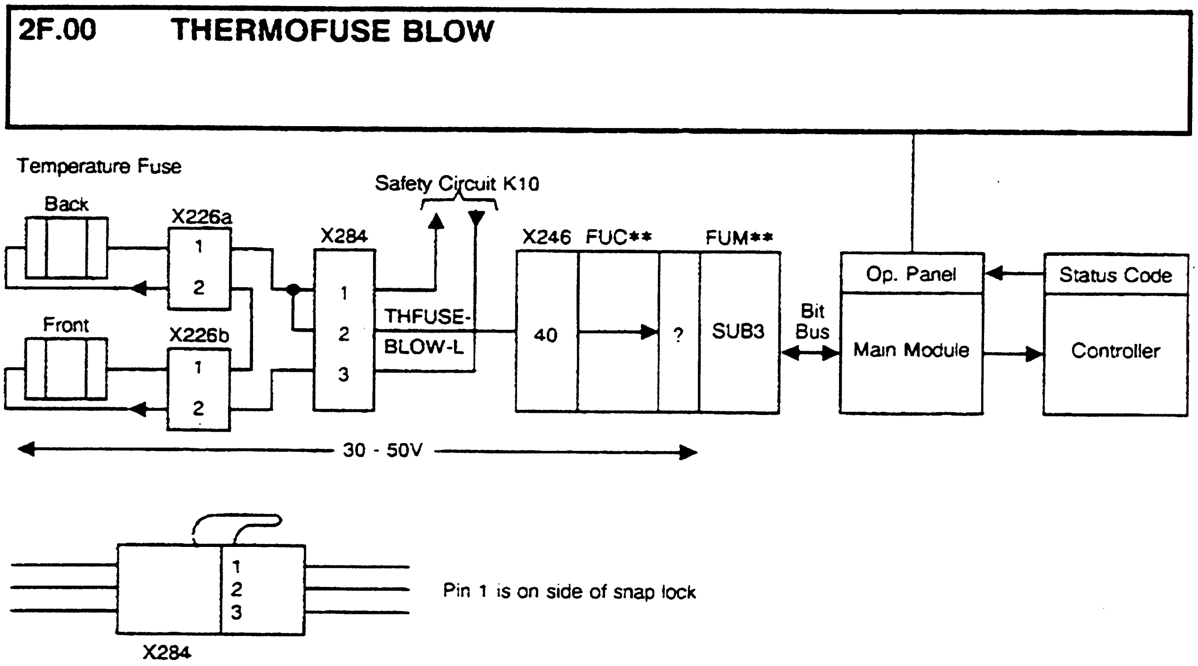

2F.00 THERMOFUSE BLOW
Temperature Fuse
Back
Front
X226a
1
2
X226b
1
2
X284
1
2
3
Safety Circuit K10
THFUSE-BLOW-L
X246 FUC**
FUM**
40
?
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
30 - 50V
X284
1
2
3
Pin 1 is on side of snap lock

Figure 3-57. 2F.00 Thermofuse Blown

Error Byte: 23/20

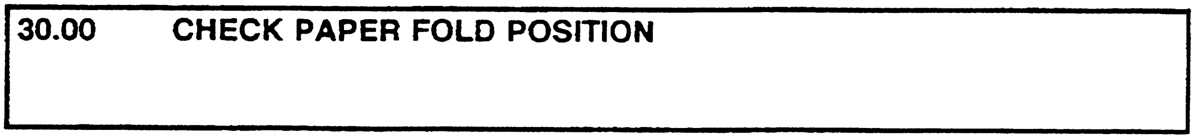
Front or Rear Temperature Fuse Has Blown

The temperature fuses blow at approximately 280°C and cause the contactor K10 to become inactive. The 5V power supply remains active. The error can be reset by CHECK RESET. The printer starts with a power-up phase.

Possible Error Causes

- Fuse has blown
- Line error (short-circuit, line breakage, contact error)
- Controller PCB FUM** defective
- Connector PCB FUC** defective

30.00 Check Paper Fold Position



30.00 CHECK PAPER FOLD POSITION

Figure 3-58. 30.00 Check Paper Fold Position

Error Byte: Controller

General

In order to print the first page on the cover sheet at every job start, a positive fold (^) has to be adjusted at the setting ruler.

As information for the operator, the message `30.00 CHECK PAPER FOLD POSITION` is displayed after every power-on, advance, and eject of the printer when the START key has been pressed. When the START key is pressed again, the printer becomes READY.

31.00 Check Paperlength

31.00 CHECK PAPERLENGTH

Figure 3-59. 31.00 Check Paperlength

Error Byte: Controller

General

The paper length adjusted in the operator panel is compared with the loaded FCB length. If the FCB length is changed, even though there is still data in the page buffer, the error is set. Then the page buffer must be printed with the previous FCB and the function Clear Printer.

Functional Description

The paper length adjusted at the operator panel is stored as a Hex value in 1/100" in the Functional Code on address 20324.

Example:

2000:0324 ⇒ 05A0H = 1440D
⇒1440 / 120 = 12"

32.00 Fold Error

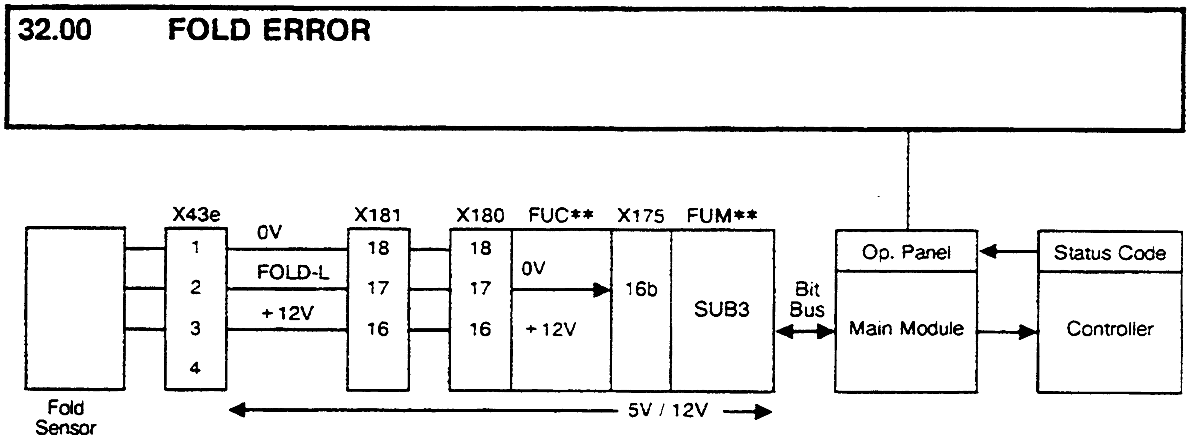

32.00 FOLD ERROR
X43e
0V
X181
X180
FUC**
X175
FUM**
1
2
3
4
FOLD-L
+12V
18
17
16
18
17
16
0V
+12V
16b
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Fold Sensor
5V / 12V

Figure 3-60. 32.00 Fold Error

Error Byte: 17/10

Stacking Error in Stacker

The fold sensor (light barrier) controls the correct stacking of the paper in the stacker. If the pulses of the light barrier are missing, the printer stops with the correct forms position and an error is set.

Possible Error Causes

- Justified error message paper stacking error in stacker
- Parameters for PAPERLENGTH and PAGES PER FORM are not properly set (menu 1.0 and 1.1).
- Dirty sensor
- Reflective foil dirty or defective
- Adjustment error (sensor PCB misadjusted)
- Line error (short circuit, line breakage, or contact error)
- Controller PCB FUM** defective
- Connector PCB FUC** defective
- LOW signal means that no paper interrupts the light beam
- In case of a cable breakage, a LOW signal is sent to the submodule

33.00 Check Paper Width

33.00 CHECK PAPER WIDTH

Figure 3-61. 33.00 Check Paper Width

Error Byte: Controller

General

The paper width is measured from the paper transport and transferred to the controller. If the paper width value is changed within a job, the controller generates error message `33.00 CHECK PAPER WIDTH`. The paper width is measured every time paper is inserted; the measured values may differ for the same paper width because of format tolerances. This in turn causes the controller to generate this error.

Error Recovery

Press the READY key.

35.00 Paper Drive Check: No 1/6” Transitions

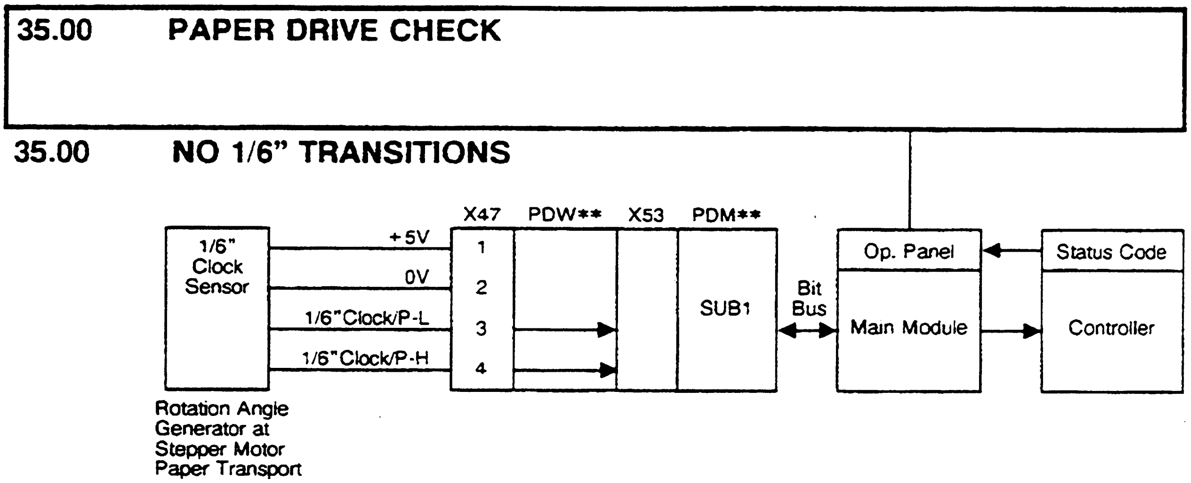

35.00 PAPER DRIVE CHECK
35.00 NO 1/6” TRANSITIONS
X47
PDW**
X53
PDM**
1/6” Clock Sensor
+5V
0V
1/6”Clock/P-L
1/6”Clock/P-H
1
2
3
4
SUB1
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Rotation Angle Generator at Stepper Motor Paper Transport

Figure 3-62. 35.00 Paper Drive Check: No 1/6” Transitions

Error Byte: 04/02

Paper Transport Does Not Move Although It Is Activated

The paper transport is driven by a stepper motor, which is connected to a rotation angle generator. This angle generator converts the rotational movement of the stepper motor into 1/6” clocks, which are evaluated by submodule 1.

An error occurs when the paper transport is activated and no 1/6” clock is detected within a certain time by the rotation angle generator. During the stepper phases at start and stop, this error monitoring is not active.

Timing Diagram

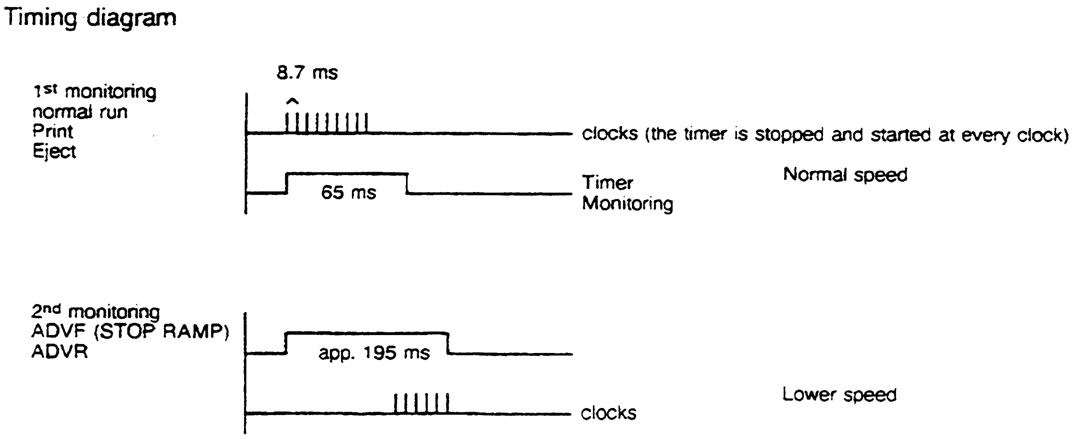

Timing diagram
1st monitoring
normal run
Print
Eject
8.7 ms
clocks (the timer is stopped and started at every clock)
65 ms
Timer Monitoring
Normal speed
2nd monitoring
ADVF (STOP RAMP)
ADVR
app. 195 ms
clocks
Lower speed

Figure 3-63. 1/6” Clock Timing Diagram

An error is generated during Print or Eject if no 1/6" clock is detected within 65 ms.
An error is generated during ADVF and ADVR if no 1/6" clock is detected within 195 ms (lower speed).

Possible Error Causes

- Line error (short circuit, line breakage, or contact error)
- Paper feed stiff
- Drive belt defective or too much/too little tension
- Paper transport stiff
- Rotation angle generator defective
- Stepper motor defective
- Stepper motor PCB PDA** defective
- Controller PCB PDM** defective
- Connector PCB PDW** defective

35.01 Paper Drive Check: No Steplock Transitions

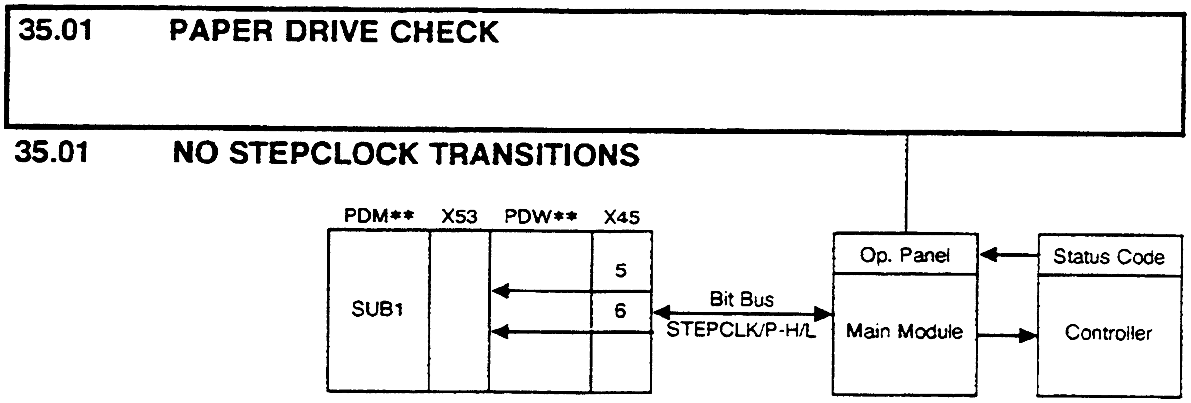

35.01 PAPER DRIVE CHECK
35.01 NO STEPCLOCK TRANSITIONS
PDM** X53 PDW** X45
SUB1
5
6
Bit Bus
STEPCLK/P-H/L
Op. Panel
Main Module
Status Code
Controller

Figure 3-64. 35.01 Paper Drive Check: No Steplock Transitions

Error Byte: 04/04

No Step Clock Detected at Bit Bus

The step clock is necessary for activation of all stepper motors in the printer. This step clock is generated by submodule 2 and available at the bit bus (pin 5 and 6).

Generation of step clocks in submodule 2:

During printing, the rotation angle generator generates a clock of about 2875 Hz. Submodule 2 processes this into STEPCLOCK and PRINTCLOCK; STEPCLOCK frequency is about 367 Hz. When the printer is inactive, submodule 2 generates an auxiliary clock of about 2750 Hz; in this case, STEPCLOCK frequency is about 350 kHz.

An error message occurs when submodule 1 detects no step clock at the bit bus. The printer is stopped immediately.

During the stepping phases at start and stop, this error monitoring is inactive.

Possible Error Causes

- Line error (short circuit, line breakage, or contact error)
- Rotation angle generator at PCD drive defective
- Controller PCB BUM** defective
- Controller PCB PDM** defective
- Connector PCB PDW** defective
- Connector PCB BUC** defective

35.02 Paper Drive Check: Formfeed Error

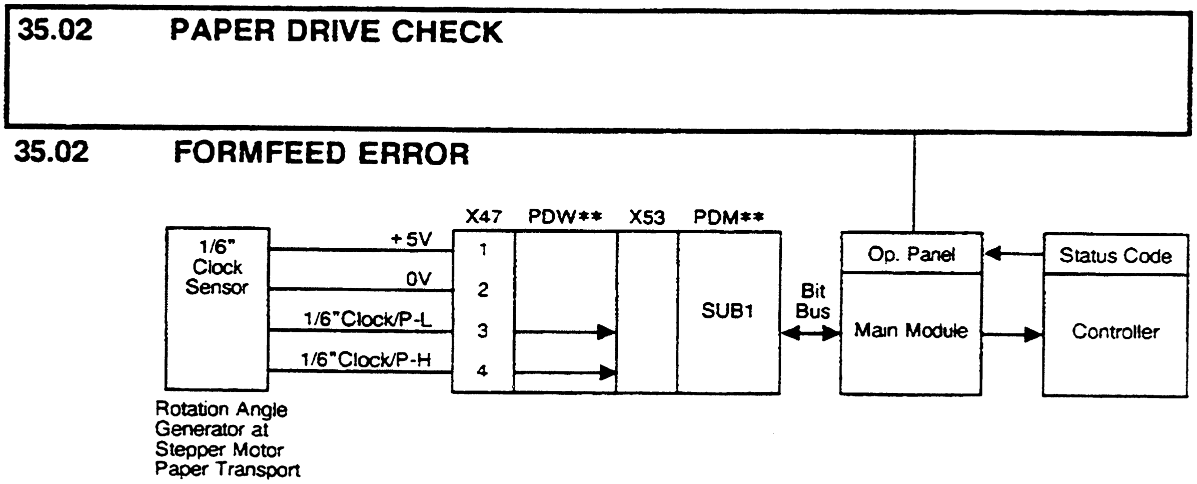

35.02 PAPER DRIVE CHECK
35.02 FORMFEED ERROR
X47
PDW**
X53
PDM**
1/6" Clock Sensor
+5V
0V
1/6"Clock/P-L
1/6"Clock/P-H
1
2
3
4
SUB1
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Rotation Angle Generator at Stepper Motor Paper Transport

Figure 3-65. 35.02 Paper Drive Check: Formfeed Error

Error Byte: 04/10

Paper is Not Drawn Back Correctly After Stop

The paper transport is driven by a stepper motor, which is connected to a rotation angle generator. This angle generator converts the rotational movement of the stepper motor into 1/6” clocks, which are evaluated by submodule 1.

In this case, only those 1/6” clocks generated while paper is drawn back are monitored. In case of a stop, the paper is drawn back by 19 1/6” steps and moved into correct forms position with about a half step forward.

An error message occurs if less than 19 1/6” clocks have been detected after the paper has been drawn back.

Possible Error Causes

- Line error (short circuit, line breakage, or contact error)
- Drive belt defective or too much/too little tension
- Paper transport stiff
- Rotation angle generator defective
- Stepper motor defective
- Stepper motor PCB ***** defective
- Controller PCB PDM** defective
- Connector PCB PDW** defective
- Malfunction of stacker tension roller

35.04 Paper Drive Check: No Start or Stop After Transrun

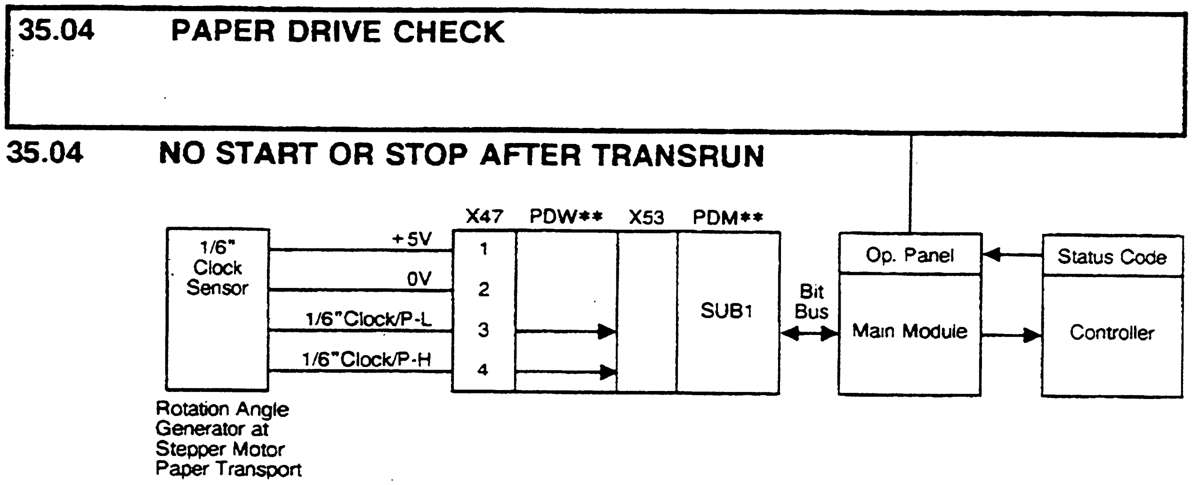

35.04 PAPER DRIVE CHECK
35.04 NO START OR STOP AFTER TRANSRUN
X47
PDW**
X53
PDM**
1/6" Clock Sensor
+5V
0V
1/6"Clock/P-L
1/6"Clock/P-H
1
2
3
4
SUB1
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Rotation Angle Generator at Stepper Motor Paper Transport

Figure 3-66. 35.04 Paper Drive Check: No Start or Stop After Transrun

Error Byte: 04/08

Step Clock Monitoring Correct Start/Stop after TRANSRUN

After setting or resetting of the signal TRRUN on the bit bus, the timer and step clocks monitor whether the paper transport runs correctly. If the clocks are not measured until the timer has run down, error message `35.04 PAPER DRIVE CHECK` is displayed. The printer stops with the correct forms position.

Timing Diagram Start Print

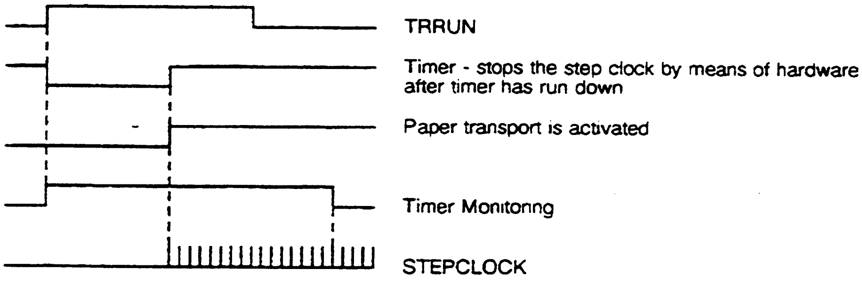

TRRUN
Timer - stops the step clock by means of hardware after timer has run down
Paper transport is activated
Timer Monitoring
STEPCLOCK

Figure 3-67. Timing Diagram Start Print

40.00 Discharge Corotron Unlocked

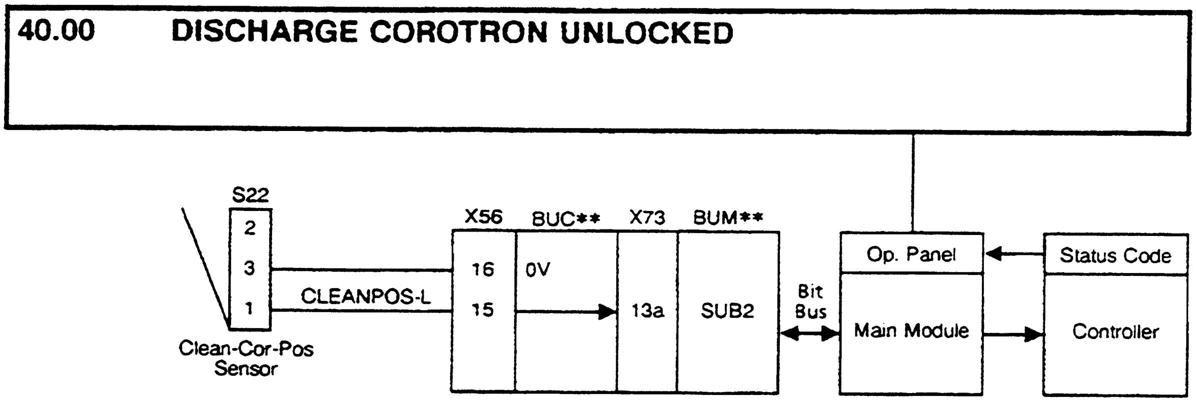

40.00 DISCHARGE COROTRON UNLOCKED
S22
2
3
1
Clean-Cor-Pos Sensor
CLEANPOS-L
X56
BUC**
X73
BUM**
16
15
0V
13a
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller

Figure 3-68. 40.00 Discharge Corotron Unlocked

Error Byte: 10/04

Cleaning Corotron Cartridge Unlocked

Switch S22 monitors whether the cartridge for the cleaning corotron is locked. The monitoring is constantly active. If the monitoring triggers while printing, the printer stops with correct forms position and can only be restarted when the cartridge is locked again.

Cartridge locked:	CLEANPOS-L = 0V
Cartridge unlocked:	CLEANPOS-L = 5V

Possible Error Causes

- Microswitch defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** defective
- Connector PCB BUC** defective

41.00 Charge Corotron Unlocked

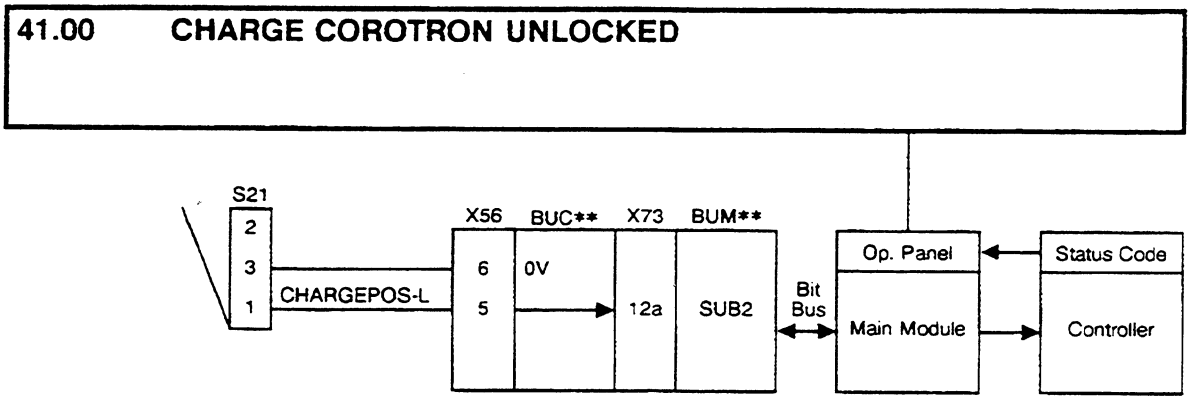

41.00 CHARGE COROTRON UNLOCKED
S21
2
3
1
CHARGEPOS-L
X56
BUC**
X73
BUM**
6
5
0V
12a
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller

Figure 3-69. 41.00 Charge Corotron Unlocked

Error Byte: 10/40

Charge Corotron Cartridge Unlocked

Switch S21 monitors whether the cartridge for the charge corotron is locked, the monitoring is constantly active. If the monitoring triggers while printing, the printer stops with the correct forms position and can only be restarted when the cartridge is locked again.

Cartridge locked:	CHARGEPOS-L = 0V
Cartridge unlocked:	CHARGEPOS-L = 5V

Possible Error Causes

- Microswitch defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** defective
- Connector PCB BUC** defective

42.00 Burster Inoperable: Additional Device Error

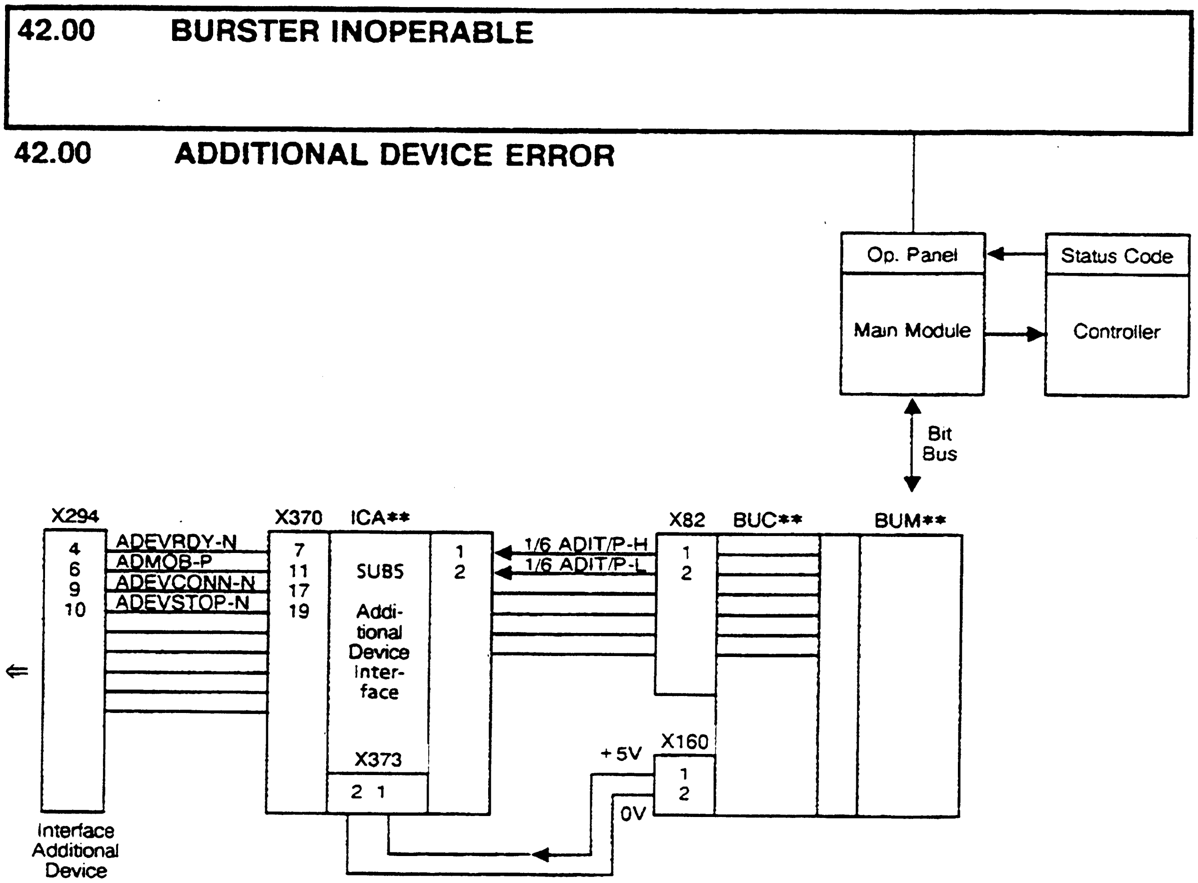

42.00 BURSTER INOPERABLE
42.00 ADDITIONAL DEVICE ERROR
Op. Panel
Status Code
Main Module
Controller
Bit Bus
X294
4
6
9
10
ADEVRDY-N
ADMOB-P
ADEVCONN-N
ADEVSTOP-N
X370
ICA**
7
11
17
19
SUBS
Additional Device Interface
X373
2 1
1
2
1/6 ADIT/P-H
1/6 ADIT/P-L
X82
BUC**
1
2
BUM**
+5V
X160
1
2
0V
Interface Additional Device

Figure 3-70. 42.00 Burster Inoperable: Additional Device Error

Error Byte: 03/40

Additional Device Interface

The additional device interface supplies communication between the printer and the additional device.

Signal ADEVCONN-N (additional device connected) = 0V

- Printer recognizes an additional device connected and powered on
- Stacker automatically moves up position into STACKEREND, stacker control and stacker error evaluation become inactive.

Signal ADEVRDY-N (additional device ready) = 0V

- Printer recognizes an additional device ready

If an error occurs at the additional device, signal ADEVRDY-N is set to +5V and error message 42.00 `BURSTER INOPERABLE` is displayed at the printer.

Signal ADEVSTOP-N (additional device stop) = 0V

- In the second line of the operator panel ADEVSTOP is displayed
- The additional device must be set to READY (ADEVSTOP-N = +5V)

Signals 1/6 ADIT/P are 1/6" clocks sent to the additional device during Print, Eject, ADVF, and ADVR; signal ADMOB-P indicates the

direction of the 1/6" clocks (paper drawn back).

An additional device ready starts as soon as it receives 1/6" clocks from the printer.

Possible Error Causes

- Additional device has detected an error and has set ADEVRDY-N to +5V
- Error recovery at additional device

43.00 Paper Transport Unlocked: Paper Unit Off

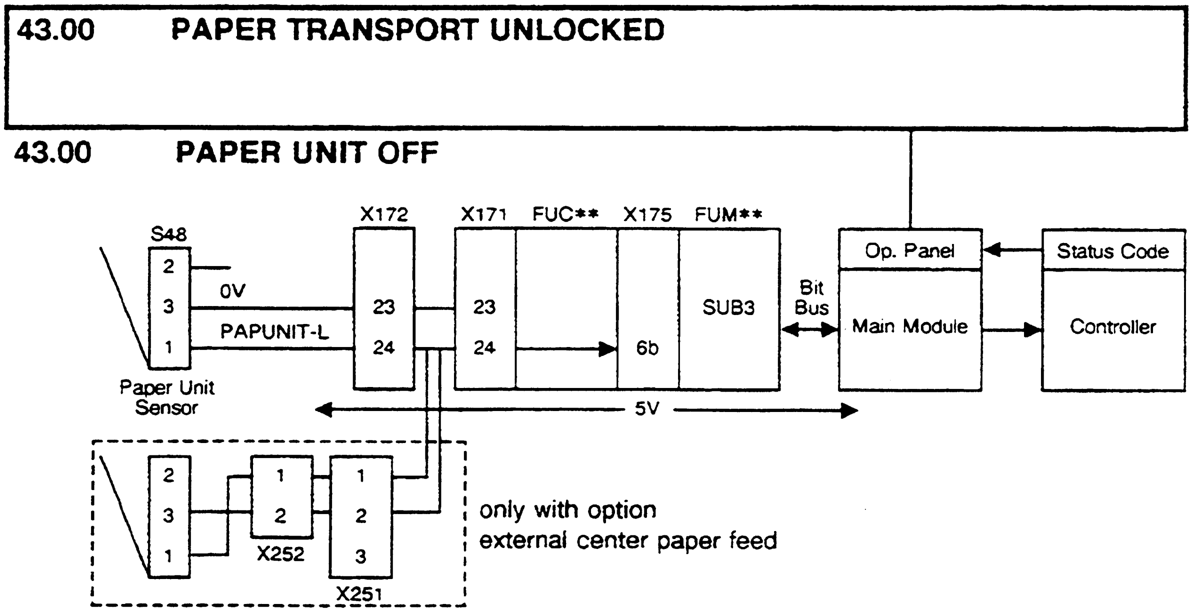

43.00 PAPER TRANSPORT UNLOCKED
43.00 PAPER UNIT OFF
S48
2
3
1
0V
PAPUNIT-L
Paper Unit Sensor
X172
23
24
X171
23
24
FUC**
X175
6b
FUM**
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V
2
3
1
1
2
X252
1
2
3
X251
only with option external center paper feed

Figure 3-71. 43.00 Paper Transport Unlocked: Paper Unit Off

Error Byte: 23/04

Loading Rocker Not Swivelled On

The paper unit sensor (microswitch S48 = relay 1 - 3) reports to submodule 3 whether the loading rocker is swivelled on.

Loading rocker swivelled on	⇒ microswitch S48 actuated
	⇒ signal PAPUNIT-L = 0V
Loading rocker not swivelled on	⇒ microswitch S48 not actuated
	⇒ signal PAPUNIT-L = +5V

Possible Error Causes

- Loading rocker swivelled off
- Microswitch defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, or contact error)
- Controller PCB FUM** defective
- Connector PCB FUC** defective

43.01 Paper Transport Unlocked: Paper Insert Lever Down

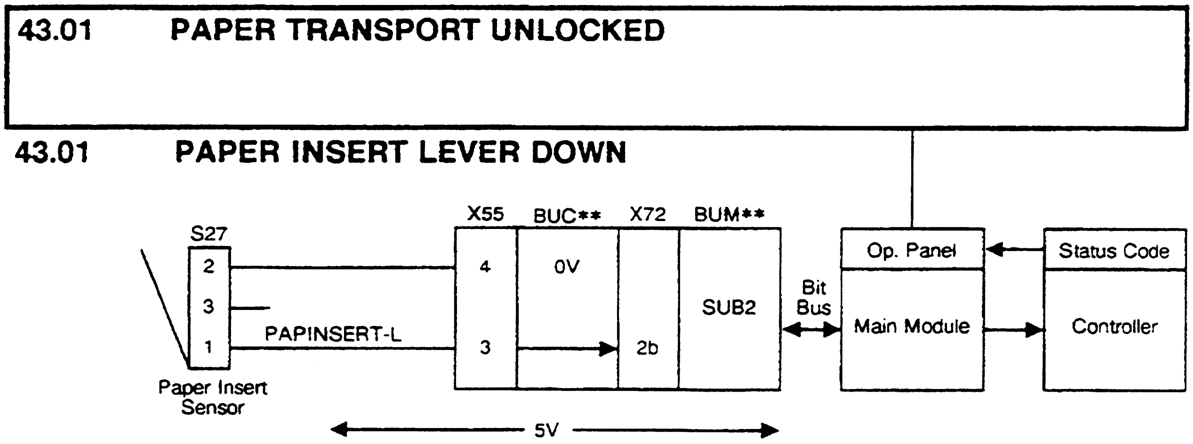

43.01 PAPER TRANSPORT UNLOCKED
43.01 PAPER INSERT LEVER DOWN
S27
2
3
1
PAPINSERT-L
Paper Insert Sensor
X55
BUC**
X72
BUM**
4
3
0V
2b
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V

Figure 3-72. 43.01 Paper Transport Unlocked: Paper Insert Lever Down

Error Byte:	08/01 not yet displayed

Paper Rocker Swivelled Off

The paper insert sensor (microswitch S27 = break contact 1 - 2) reports to submodule 2 whether the loading rocker is swivelled off.

Loading rocker swivelled off completely	⇒ microswitch S27 is actuated ⇒ signal PAPINSERT-H = +5V
Loading rocker not swivelled off completely	⇒ microswitch S27 is not actuated ⇒ signal PAPINSERT-H = 0V

Possible Error Causes

- Microswitch defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** defective
- Connector PCB BUC** defective

45.00 Paperjam Burster

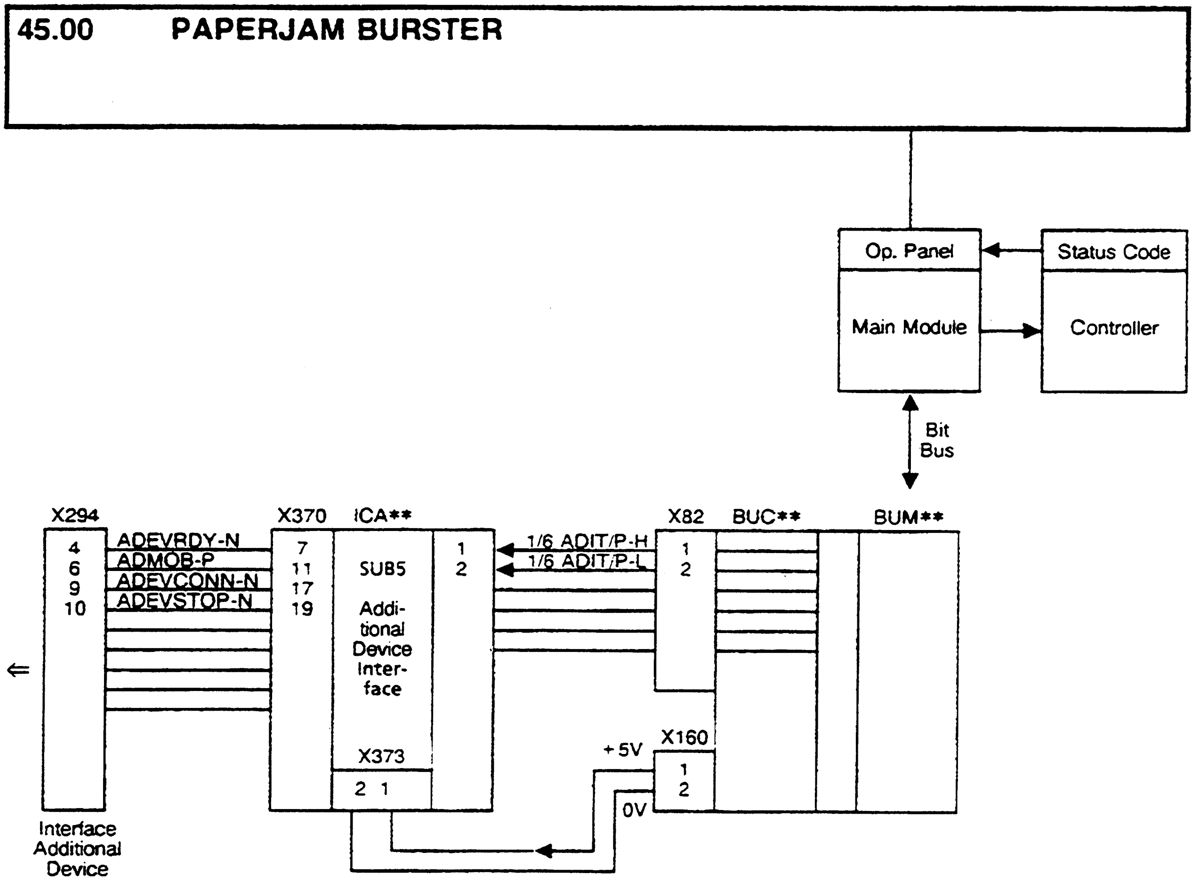

45.00 PAPERJAM BURSTER
Op. Panel
Status Code
Main Module
Controller
Bit Bus
X294
X370
ICA**
X82
BUC**
BUM**
ADEVRDY-N
ADMOB-P
ADEVCONN-N
ADEVSTOP-N
4
6
9
10
7
11
17
19
SUB5
Addi-tional Device Inter-face
1
2
1/6 ADIT/P-H
1/6 ADIT/P-L
1
2
X373
2 1
+5V
X160
1
2
0V
⇐
Interface Additional Device

Figure 3-73. 45.00 Paperjam Burster

Error Byte: 03/80 not yet realized

52.00 Papertension Check: Papertension Low Error

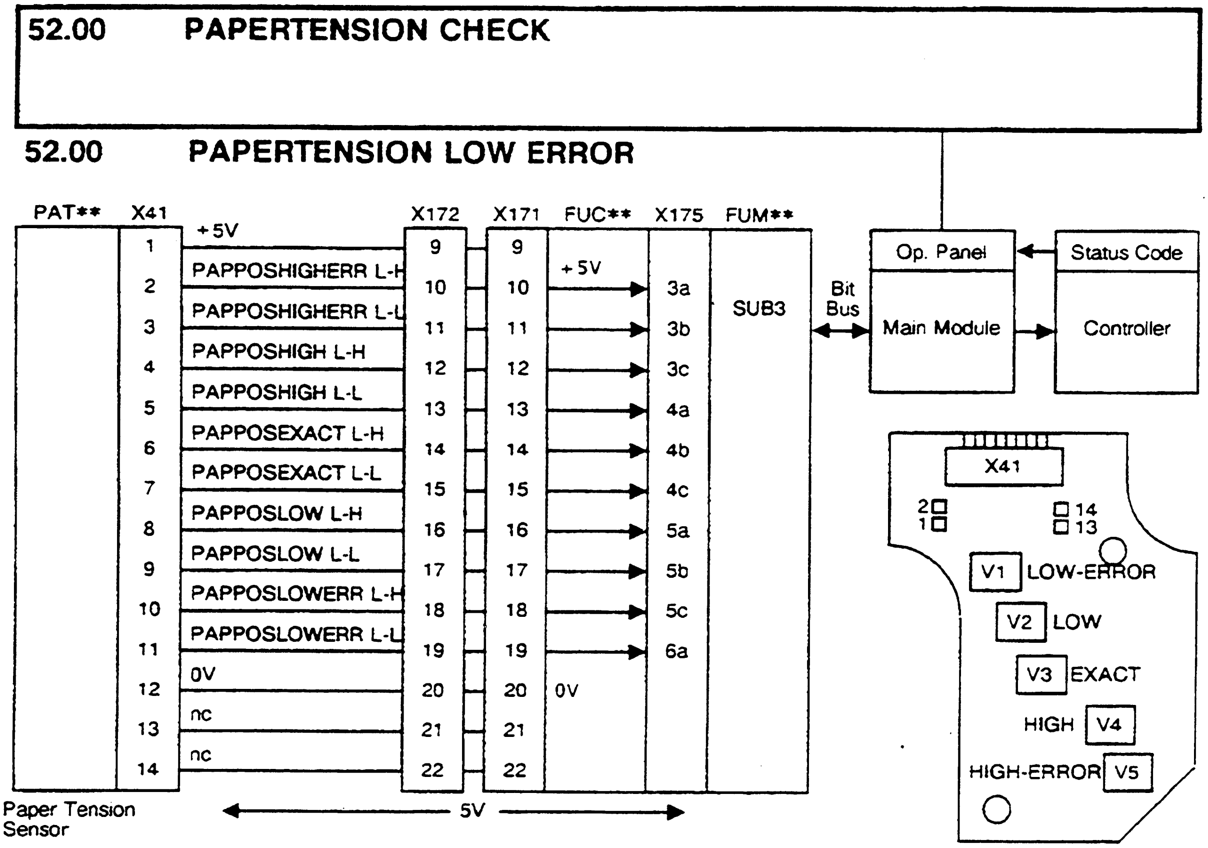

52.00 PAPERTENSION CHECK
52.00 PAPERTENSION LOW ERROR
PAT**
X41
X172
X171
FUC**
X175
FUM**
+5V
PAPPOSHIGHERR L-H
PAPPOSHIGHERR L-L
PAPPOSHIGH L-H
PAPPOSHIGH L-L
PAPPOSEXACT L-H
PAPPOSEXACT L-L
PAPPOSLOW L-H
PAPPOSLOW L-L
PAPPOSLOWERR L-H
PAPPOSLOWERR L-L
0V
nc
nc
3a
3b
3c
4a
4b
4c
5a
5b
5c
6a
SUB3
Bit Bus
Op. Panel
Status Code
Main Module
Controller
X41
V1 LOW-ERROR
V2 LOW
V3 EXACT
HIGH V4
HIGH-ERROR V5
Paper Tension Sensor
5V

Figure 3-74. 52.00 Papertension Check: Papertension Low Error

Error Byte: 18/02

Paper Loop Between Paper Transport and Fuser Station Too Small

The paper tension sensor (5 hall switches and 1 magnet) detects 5 different positions of the paper tensioner:

PAPER-POSITION-HIGH-ERROR, -HIGH, -EXACT, -LOW, and -LOW-ERROR.

HIGH, EXACT, and LOW signals are evaluated for speed control of the fuser roller; HIGH-ERROR and LOW-ERROR signals result in error messages when the paper tensioner reaches the lowest position, PAPER-POSITION-LOW-ERROR, during the Eject or Print procedure. This error causes a hard stop.

Possible Error Causes

- Line error (short-circuit, line breakage, contact error at plug)
- Sensor PCB defective or misadjusted
- Controller PCB FUM** defective
- Connector PCB FUC** defective
- Error at paper transport (observe error message submodule 1 paper transport)
- Incorrect paper path (paper runs out of feed tractors)
- Paper transport too slow, does not start or step up correctly
- Fuser station starts too early or steps up too fast
- Pressure roller swivels on too fast

52.01 Papertension Check: Papertension High Error

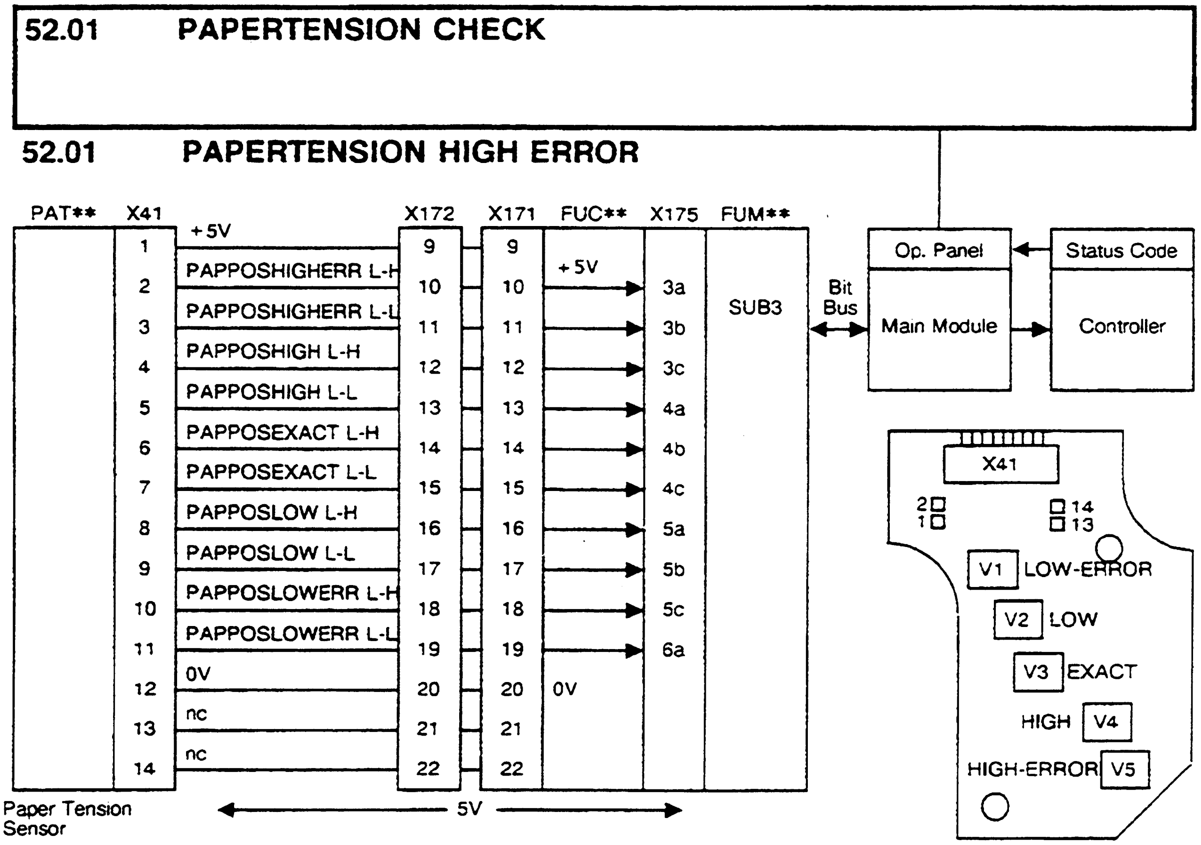

52.01 PAPERTENSION CHECK
52.01 PAPERTENSION HIGH ERROR
PAT**
X41
X172
X171
FUC**
X175
FUM**
+5V
1
2
3
4
5
6
7
8
9
10
11
12
13
14
PAPPOSHIGHERR L-H
PAPPOSHIGHERR L-L
PAPPOSHIGH L-H
PAPPOSHIGH L-L
PAPPOSEXACT L-H
PAPPOSEXACT L-L
PAPPOSLOW L-H
PAPPOSLOW L-L
PAPPOSLOWERR L-H
PAPPOSLOWERR L-L
0V
nc
nc
9
10
11
12
13
14
15
16
17
18
19
20
21
22
+5V
0V
3a
3b
3c
4a
4b
4c
5a
5b
5c
6a
SUB3
Bit Bus
Op. Panel
Status Code
Main Module
Controller
X41
2
1
14
13
V1 LOW-ERROR
V2 LOW
V3 EXACT
HIGH V4
HIGH-ERROR V5
Paper Tension Sensor
5V

Figure 3-75. 52.01 Papertension Check: Papertension High Error

Error Byte: 18/04

Paper Loop Between Paper Transport and Fuser Station Too Big

The paper tension sensor (5 hall switches and 1 magnet) detects 5 different positions of the paper tensioner:

PAPER-POSITION-HIGH-ERROR,-HIGH, -EXACT, -LOW, and -LOW-ERROR.

HIGH, EXACT, and LOW signals are evaluated for speed control of the fuser roller; HIGH-ERROR and LOW-ERROR signals result in error messages when the paper tensioner reaches the uppermost position, PAPER-POSITION-HIGH-ERROR, during the Eject or Print procedure. This error causes a hard stop.

Possible Error Causes

- Paper torn between paper transport and fuser station
- Line error (short-circuit, line breakage, contact error at plug)
- Sensor PCB defective
- Controller PCB FUM** defective
- Connector PCB FUC** defective
- Error at paper transport (observe error message submodule 1 paper transport)
- Paper transport too fast, starts too early or steps up to fast
- Fuser station starts too late or steps up too slow
- Pressure roller swivels on too slowly
- Paper slip between pressure roller and fuser roller

61.00 Drumcover Open

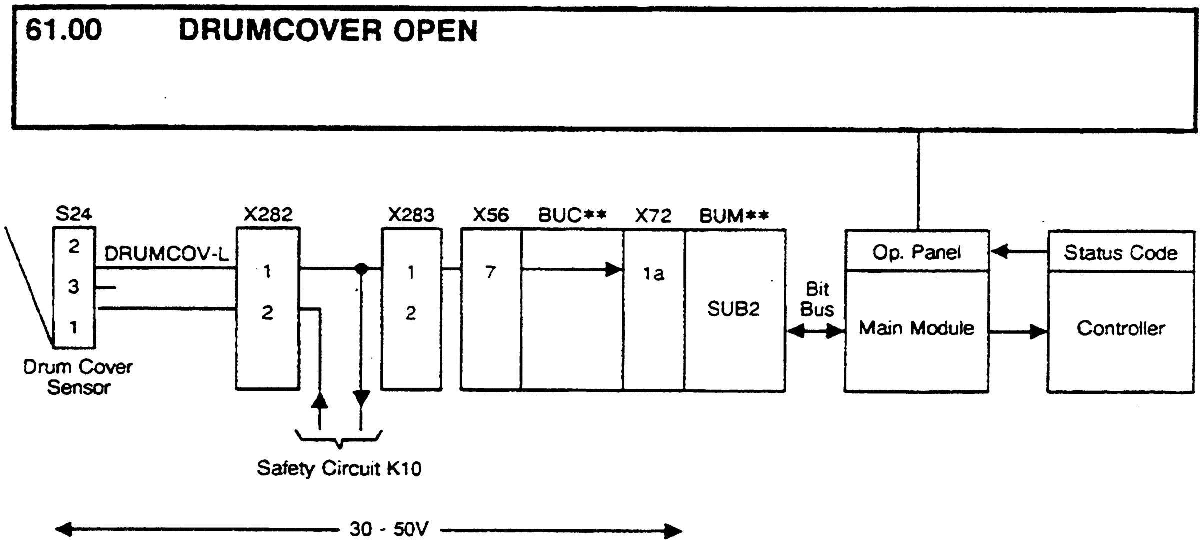

61.00 DRUMCOVER OPEN
S24
X282
X283
X56
BUC**
X72
BUM**
2
3
1
DRUMCOV-L
1
2
1
2
7
1a
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Drum Cover Sensor
Safety Circuit K10
30 - 50V

Figure 3-76. 61.00 Drumcover Open

Error Byte: 07/80

Drum Cover Door Open

If the door directly in front of the PCD is opened, the contactor K10 becomes inactive. The 5V power supply remains active. The error can be reset with twice CHECK RESET when the drum cover door is closed. The printer starts with a power-up phase.

Possible Error Causes

- Microswitch defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** defective
- Connector PCB BUC** defective

62.00 Paperflaps Open

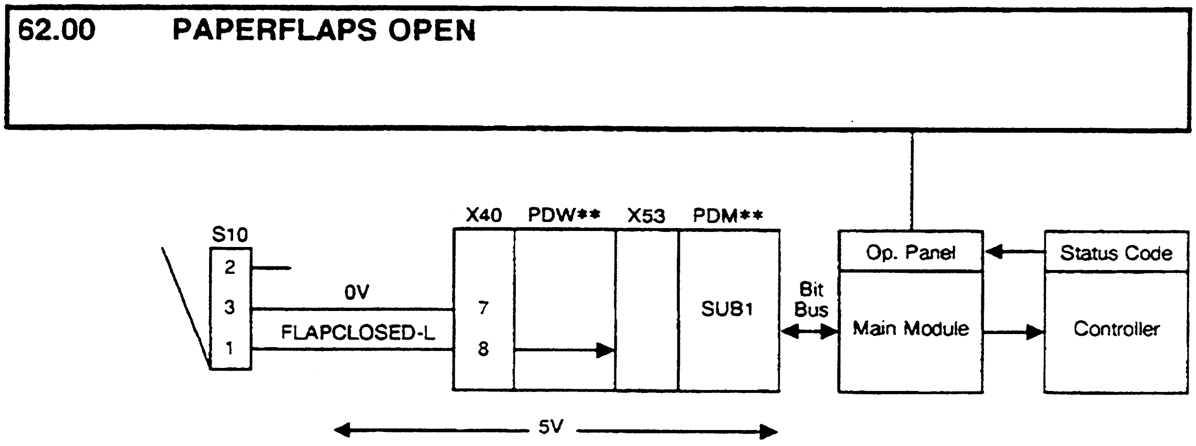

62.00 PAPERFLAPS OPEN
S10
2
3
1
0V
FLAPCLOSED-L
X40
PDW**
X53
PDM**
7
8
SUB1
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V

Figure 3-77. 62.00 Paperflaps Open

Error Byte: 05/01

Lower Tractor Flaps Open

In order to open and close the lower tractor covers, the lever for the tractor covers (located at the operator panel side at the paper transport) has to be actuated. The position of the lever is monitored by switch S10 (relay 1 - 3) on the axle.

Lever for tractor cover closed	⇒ switch S10 actuated ⇒ signal FLAPCLOSED-L = 0V
Lever for tractor cover open	⇒ switch S10 not actuated ⇒ signal FLAPCLOSED-L = +5V

Possible Error Causes

- Microswitch defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, or contact error)
- Controller PCB PDM** defective
- Connector PCB PDW** defective

63.00 Pressure Error

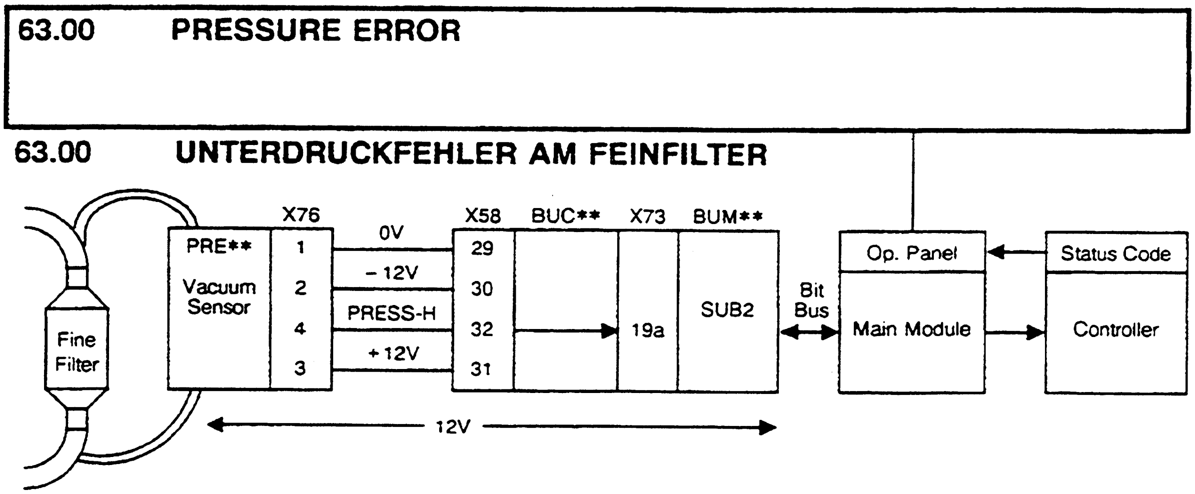

63.00 PRESSURE ERROR
63.00 UNTERDRUCKFEHLER AM FEINFILTER
Fine Filter
PRE**
Vacuum Sensor
X76
1
2
4
3
0V
- 12V
PRESS-H
+ 12V
X58
29
30
32
31
BUC**
X73
19a
BUM**
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
12V

Figure 3-78. 63.00 Pressure Error

Error Byte: 12/04

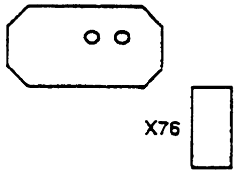
Vacuum System Defective

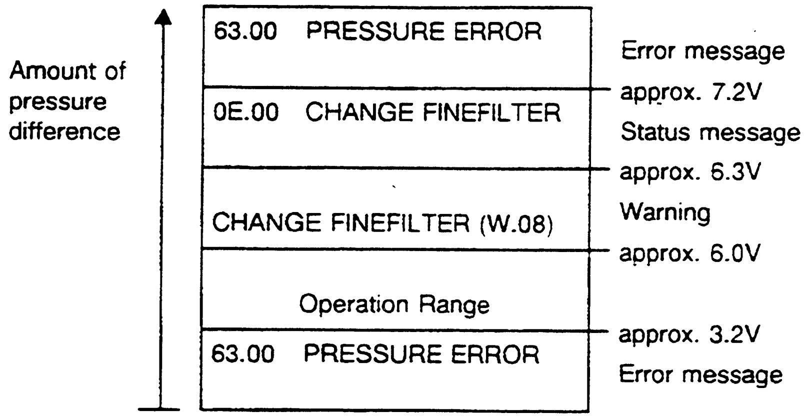
The vacuum sensor PRE** controls the fine filter. Before and after the fine filter, a pipe leads to PRE**. If the vacuum is not within the permissible range (corresponds to V), the PCB BUM** reports `63.00 PRESSURE ERROR`.

The monitoring is always activated when the fan is switched on.

Possible Error Causes

1. Fine filter full
2. Toner catchbox not swivelled on
3. Error in vacuum system
4. No fine filter inserted (pressure difference too small)
5. Fine filter and fine filter container not correctly sealed




Amount of pressure difference
63.00 PRESSURE ERROR
Error message
approx. 7.2V
0E.00 CHANGE FINEFILTER
Status message
approx. 6.3V
CHANGE FINEFILTER (W.08)
Warning
approx. 6.0V
Operation Range
approx. 3.2V
63.00 PRESSURE ERROR
Error message

63.01 Pressure Error

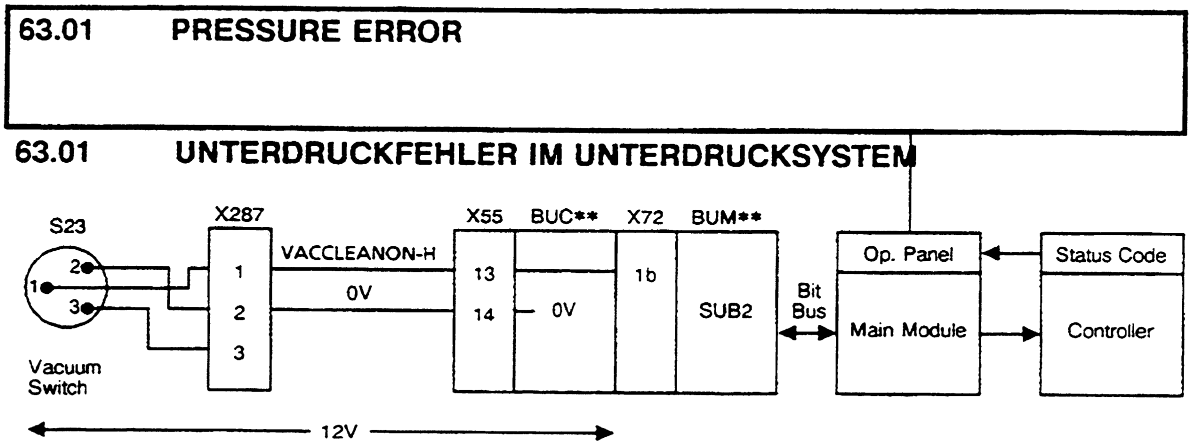

63.01 PRESSURE ERROR
63.01 UNTERDRUCKFEHLER IM UNTERDRUCKSYSTEM
S23
1
2
3
Vacuum Switch
X287
1
2
3
VACCLEANON-H
0V
X55
13
14
BUC**
0V
X72
1b
BUM**
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
12V

Figure 3-79. 63.01 Pressure Error

Error Byte: 10/08

Vacuum System Defective or Open

A signal is generated when the vacuum switch S23 senses a vacuum below 50 mbar.

Vacuum correct: signal VACCLEANON-H = 0V

Vacuum too low: signal VACCLEANON-H = +12V

Possible Error Causes

- Vacuum blower defective
- Vacuum system open
  - catchbox open, sealing defective
  - fine filter open, sealing defective
  - tube defective
- Cyclone filter defective
- Vacuum switch dirty, defective or connected incorrectly
- Line error (short circuit, line breakage, or contact error)
- Connector PCB BUC** defective
- Controller PCB BUM** defective

64.00 Swivel Error: Swivel-on Not Left or Reached

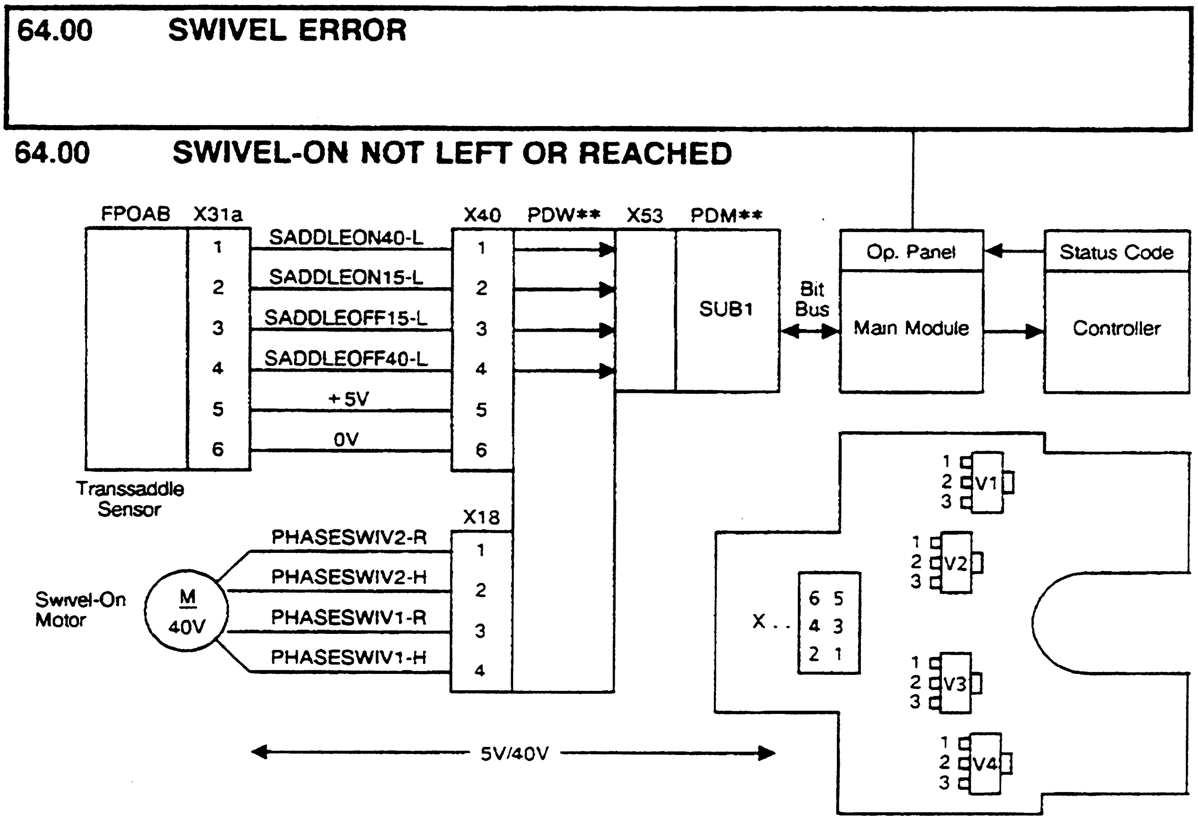

64.00 SWIVEL ERROR
64.00 SWIVEL-ON NOT LEFT OR REACHED
FPOAB
X31a
X40
PDW**
X53
PDM**
SADDLEON40-L
SADDLEON15-L
SADDLEOFF15-L
SADDLEOFF40-L
+5V
0V
1
2
3
4
5
6
Transsaddle Sensor
SUB1
Bit Bus
Op. Panel
Main Module
Status Code
Controller
X18
PHASESWIV2-R
PHASESWIV2-H
PHASESWIV1-R
PHASESWIV1-H
Swivel-On Motor
M
40V
X..
6 5
4 3
2 1
V1
V2
V3
V4
5V/40V

Figure 3-80. 64.00 Swivel Error: Swivel-on Not Left or Reached

Error Byte: 05/02

Swivel-on Error of Transfer Platens

In order to swivel the transfer platens on and off, a stepper motor is used. Its position can be detected via a magnet on the axle and the scanning PCB FPOAB.

After the signal TRRUN and a delay time, the function UPRAMP paper transport is started. After 91 step clocks have been counted, the swivel-on process of the transfer platens is started. The stepper motor receives its pulse clock; after 176 pulses, the error monitoring is activated. If the signal SADDLEON15-L becomes not L, the error frame 64.00 SWIVEL ERROR is set.

Timing Diagram

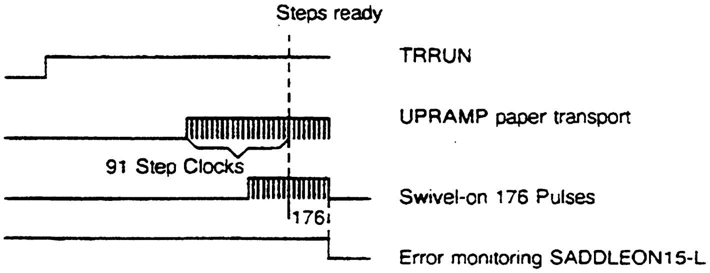

Steps ready
TRRUN
UPRAMP paper transport
91 Step Clocks
Swivel-on 176 Pulses
176
Error monitoring SADDLEON15-L

Figure 3-81. Timing Diagram of Swivel-on Error of Transfer Platens

Possible Error Causes

- Sensor PCB defective
- Magnet defective (loss of magnet)
- Heavy swivel mechanism
- Swivel motor defective
- Line error (short circuit, line breakage, or contact error)
- Connector PCB BUC** defective
- Controller PCB BUM** defective
- Power PCB PDA** defective

64.01 Swivel Error: Swivel-off Not Left or Reached

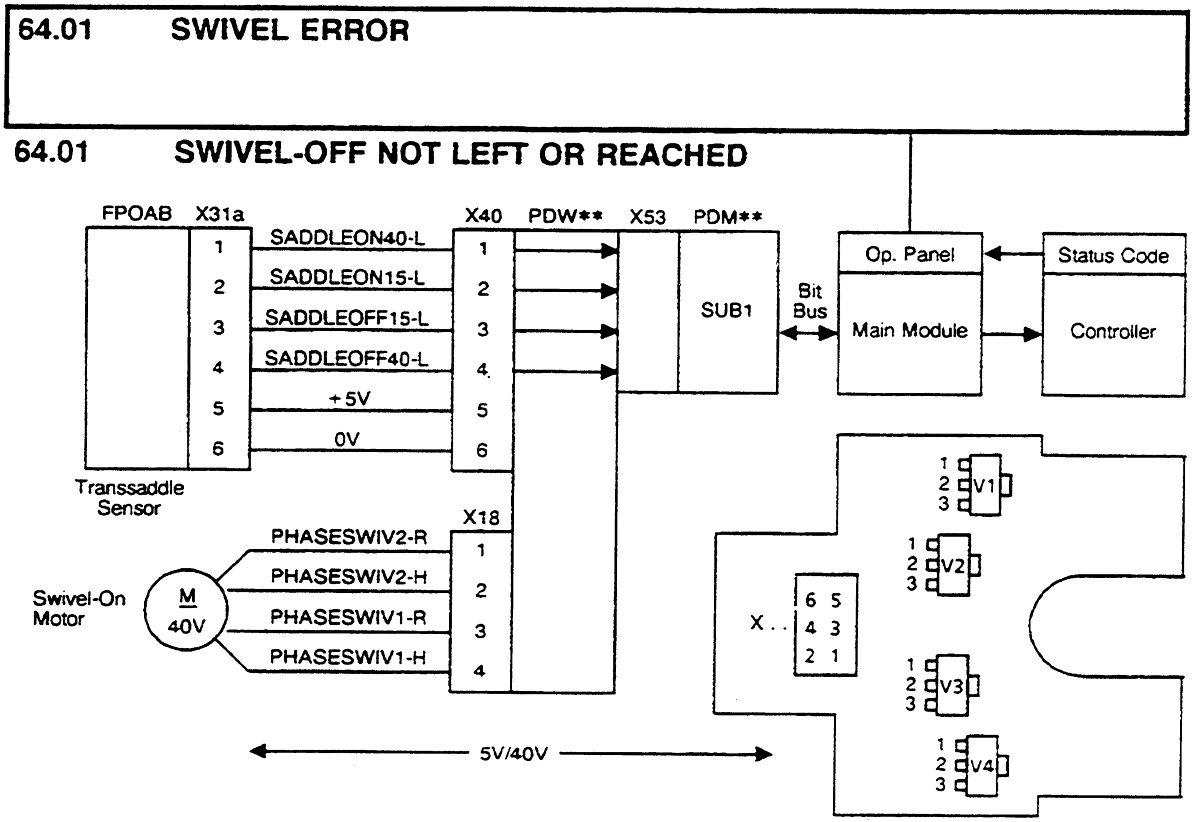

64.01 SWIVEL ERROR
64.01 SWIVEL-OFF NOT LEFT OR REACHED
FPOAB
X31a
1
2
3
4
5
6
SADDLEON40-L
SADDLEON15-L
SADDLEOFF15-L
SADDLEOFF40-L
+5V
0V
X40
PDW**
X53
PDM**
SUB1
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Transsaddle Sensor
X18
PHASESWIV2-R
PHASESWIV2-H
PHASESWIV1-R
PHASESWIV1-H
Swivel-On Motor
M
40V
5V/40V
X..
6 5
4 3
2 1
V1
V2
V3
V4

Figure 3-82. 64.01 Swivel Error: Swivel-off Not Left or Reached

Error Byte: 05/04

Swivel-off Error of Transfer Platens

In order to swivel the transfer platens on and off, a stepper motor is used. Its position can be detected via a magnet on the axle and the scanning PCB FPOAB.

After signal TRRUN is removed, a timer is set; after this timer has run down, the swivel-off process begins for 70 ms. After 80 step clocks of the swivel-off process, the function DOWNRAMP paper transport starts. The swivel-off process is finished before the DOWNRAMP process, and the error monitoring checks the signal SADDLEOFF15-L. If the signal is not L, the error frame 64.01 `SWIVEL ERROR` is set.

Timing Diagram

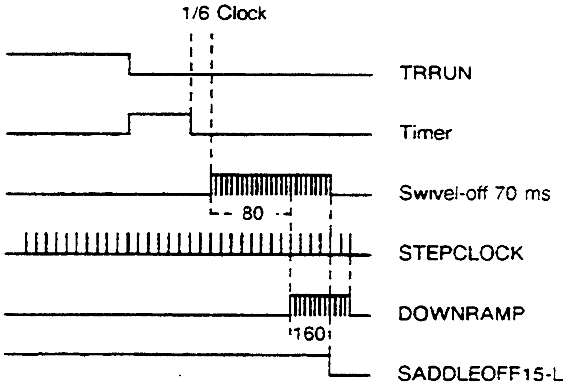

1/6 Clock
TRRUN
Timer
Swivel-off 70 ms
80
STEPCLOCK
DOWNRAMP
160
SADDLEOFF15-L

Figure 3-83. Timing Diagram of Swivel-off Error of Transfer Platens

Possible Error Causes

- Sensor PCB defective
- Magnet defective (loss of magnet)
- Heavy swivel mechanism
- Swivel motor defective
- Line error (short circuit, line breakage, or contact error)
- Connector PCB BUC** defective
- Controller PCB BUM** defective
- Power PCB PDA** defective

65.00 Frontdoor Open

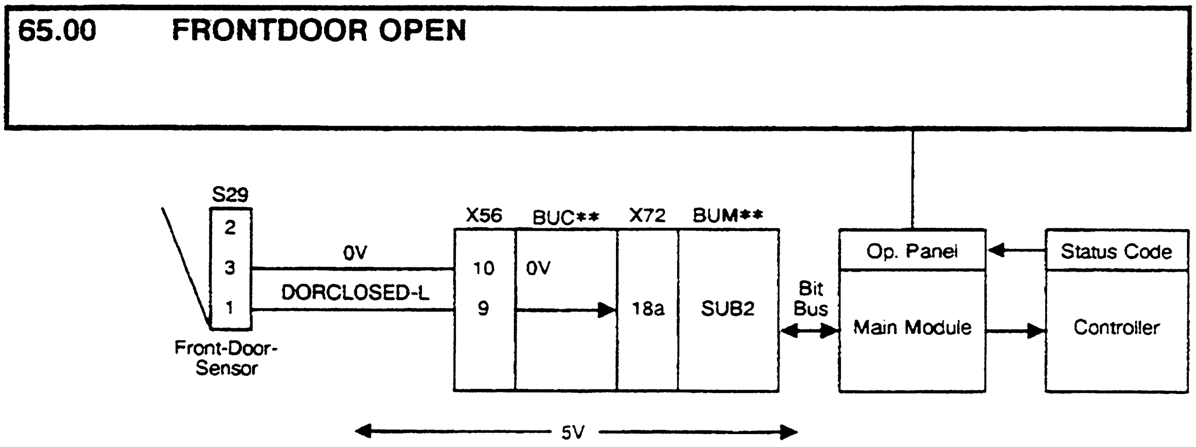

65.00 FRONTDOOR OPEN
S29
2
3
1
Front-Door-Sensor
0V
DORCLOSED-L
X56
BUC**
X72
BUM**
10
9
0V
18a
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V

Figure 3-84. 65.00 Frontdoor Open

Error Byte: 11/02

Cover Door of PCD Open

Microswitch S29 (relays 1-3) reports the position of the cover door in front of the PCD to submodule 2.

Front door closed ⇒ microswitch S29 actuated
⇒ signal DORCLOSED-L = 0V

Front door opened ⇒ microswitch S29 not actuated
⇒ signal DORCLOSED-L = +5V

During Print, the printer is stopped with correct forms position. The error can be reset with READY or CHECK RESET when the front door is closed.

During Standby, the error is reset automatically after closing the front door.

Possible Error Causes

- Microswitch defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** defective
- Connector PCB BUC** defective

67.00 Toner Transport Error

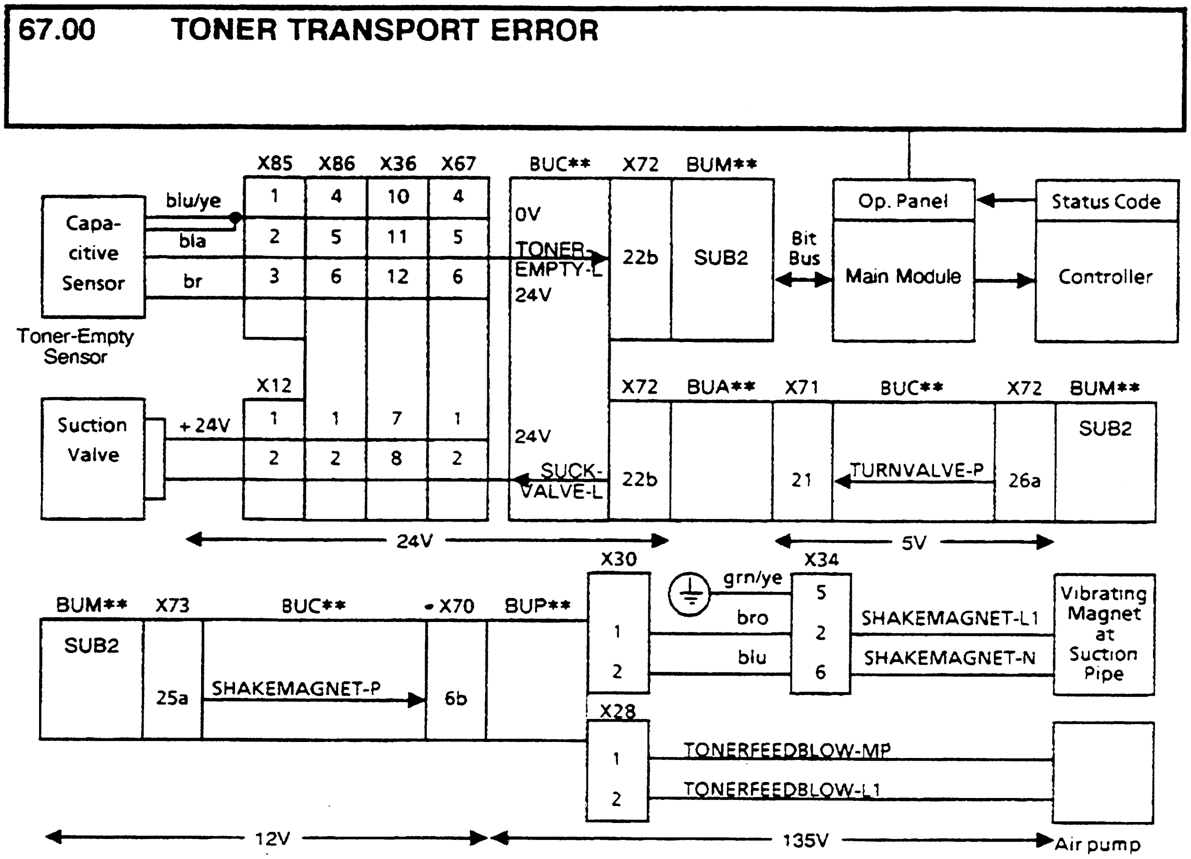

67.00
TONER TRANSPORT ERROR
X85
X86
X36
X67
BUC**
X72
BUM**
Capa-citive Sensor
blu/ye
bla
br
Toner-Empty Sensor
0V
TONER-EMPTY-L
24V
22b
SUB2
Bit Bus
Op. Panel
Status Code
Main Module
Controller
X12
Suction Valve
+24V
X72
BUA**
X71
BUC**
X72
BUM**
SUB2
SUCK-VALVE-L
22b
21
TURNVALVE-P
26a
24V
5V
X30
X34
grn/ye
bro
blu
SHAKEMAGNET-L1
SHAKEMAGNET-N
Vibrating Magnet at Suction Pipe
BUM**
X73
BUC**
X70
BUP**
SUB2
25a
SHAKEMAGNET-P
6b
X28
TONERFEEDBLOW-MP
TONERFEEDBLOW-L1
12V
135V
Air pump

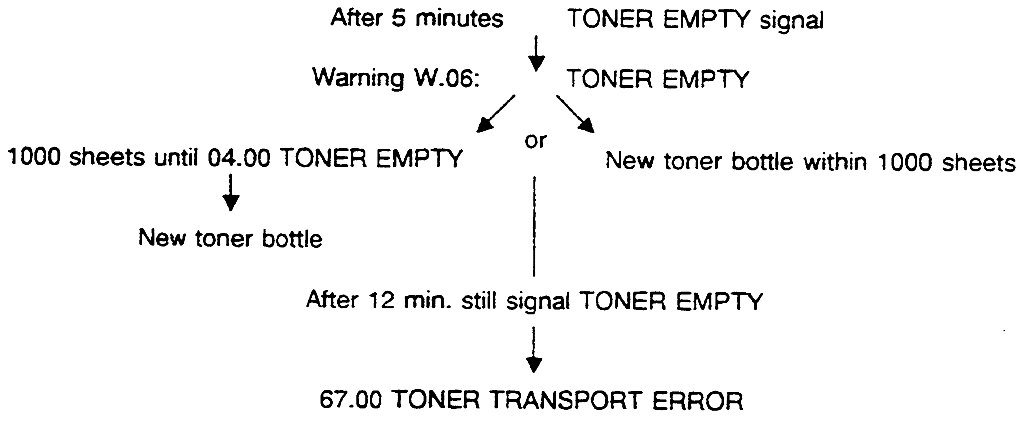
Figure 3-85. 67.00 Toner Transport Error

Error Byte: 14/40

Error in Toner Feed System

The error in the toner feed system is between the toner bottle and toner box at the developer station.

Short description (for detailed information, see 04.00 TONER EMPTY):


After 5 minutes
TONER EMPTY signal
Warning W.06:
TONER EMPTY
1000 sheets until 04.00 TONER EMPTY
or
New toner bottle within 1000 sheets
New toner bottle
After 12 min. still signal TONER EMPTY
67.00 TONER TRANSPORT ERROR

Possible Error Causes

- Little air throughput (for measuring refer to maintenance routines)
- Hose or suction pipe choked
- Vibrating magnet defective, misadjusted, or connected incorrectly
- Toner empty sensor defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** or connector PCB BUC** defective
- Power PCB BUP** or BUA** defective
- Suction clock valve defective, dirty or is not triggered

69.00 Drum Speed: No Centralclock Detected

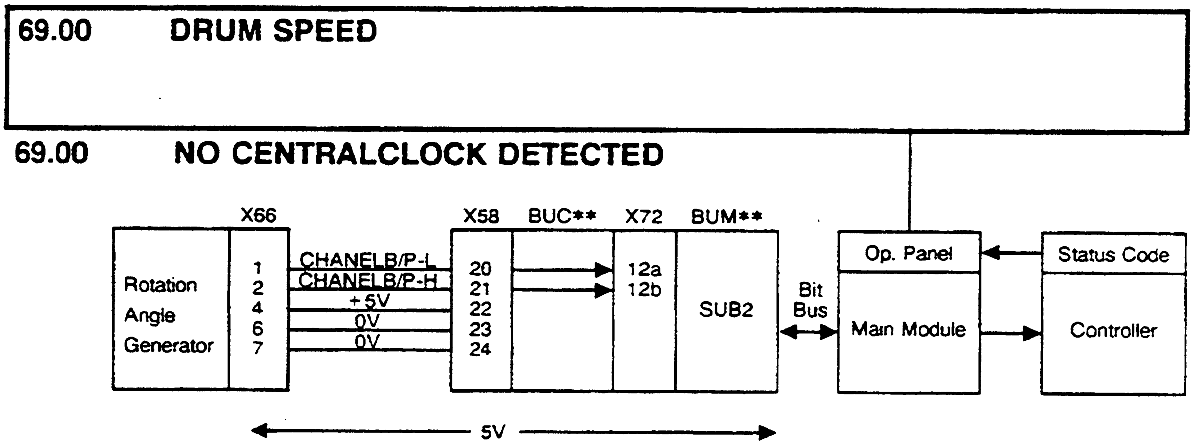

69.00 DRUM SPEED
69.00 NO CENTRALCLOCK DETECTED
X66
X58
BUC**
X72
BUM**
Rotation Angle Generator
1
2
4
6
7
CHANELB/P-L
CHANELB/P-H
+5V
0V
0V
20
21
22
23
24
12a
12b
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V

Figure 3-86. 69.00 Drum Speed: No Centralclock Detected

Error Byte: 12/02

No Clock of Rotation Angle Generator at PCD Drive

The printer controller is controlled independently of the mains frequency by means of a phase-locked loop (PLL). The PCD is driven by a synchronous motor with a secondary transmission. An incremental rotation angle generator located on the drive axle generates a clock during drum rotation and sends it to the processor PCB (at 50 Hz mains frequency 2875 Hz). This clock is used together with the PLL and separators to generate PRCLK-P (print clock) and STEPCLK-P (step clock) with correct phases and polarity signs.

The existence of the clock is monitored by the processor PCB. If an error occurs here, `69.00 DRUM SPEED` is set and the printer is stopped immediately (without correct forms position). The monitoring is activated with power-on of the PCD.

Possible Error Causes

- Rotation angle generator defective
- Line error (short circuit, line breakage, or contact error)
- PCD motor defective
- Mechanic link between rotation angle generator and PCD axle defective
- Controller PCB BUM** defective
- Connector PCB BUC** defective

69.01 Drum Speed: Improper Centralclock

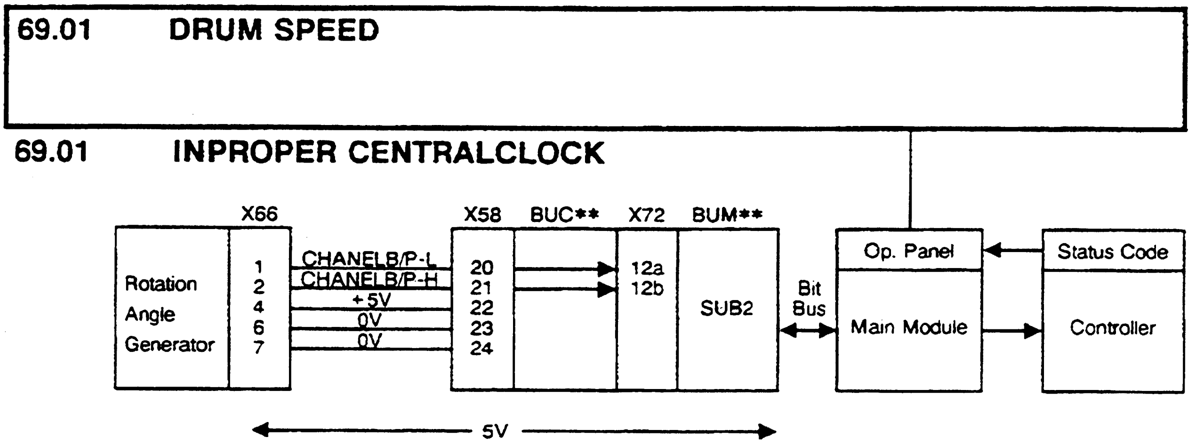

69.01 DRUM SPEED
69.01 INPROPER CENTRALCLOCK
X66
X58
BUC**
X72
BUM**
Rotation Angle Generator
1
2
4
6
7
CHANELB/P-L
CHANELB/P-H
+5V
0V
0V
20
21
22
23
24
12a
12b
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V

Figure 3-87. 69.01 Drum Speed: Improper Centralclock

Error Byte: 14/01

Clock of Rotation Angle Generator Defective

The printer controller is controlled independently of the mains frequency by means of a phase-locked loop (PLL). The PCD is driven by a synchronous motor with a secondary transmission. An incremental rotation angle generator located on the drive axle generates a clock during drum rotation and sends it to the processor PCB (at 50 Hz mains frequency 2875 Hz). This clock is used together with the PLL and separators to generate PRCLK-P (print clock) and STEPCLK-P (step clock) with correct phases and polarity signs.

The processor PCB monitors whether phase and polarity signs are correct. If phase or polarity signs differ too much from the reference clock (auxiliary clock when drum does not rotate) or the clock of the incremental rotation angle generator, the printer is stopped immediately (without correct forms position) and the error `69.01 DRUM SPEED` is set.

Possible Error Causes

- PCD motor defective
- PCD mechanical system stiff (hacks)
- Line error (short circuit, line breakage, or contact error)
- Mechanic link between rotation angle generator and PCD axle defective
- Rotation angle generator defective
- Controller PCB BUM** defective
- Connector PCB BUC** defective

6A.00 Motor Temp Too High: Overtemp LED-Ventilator

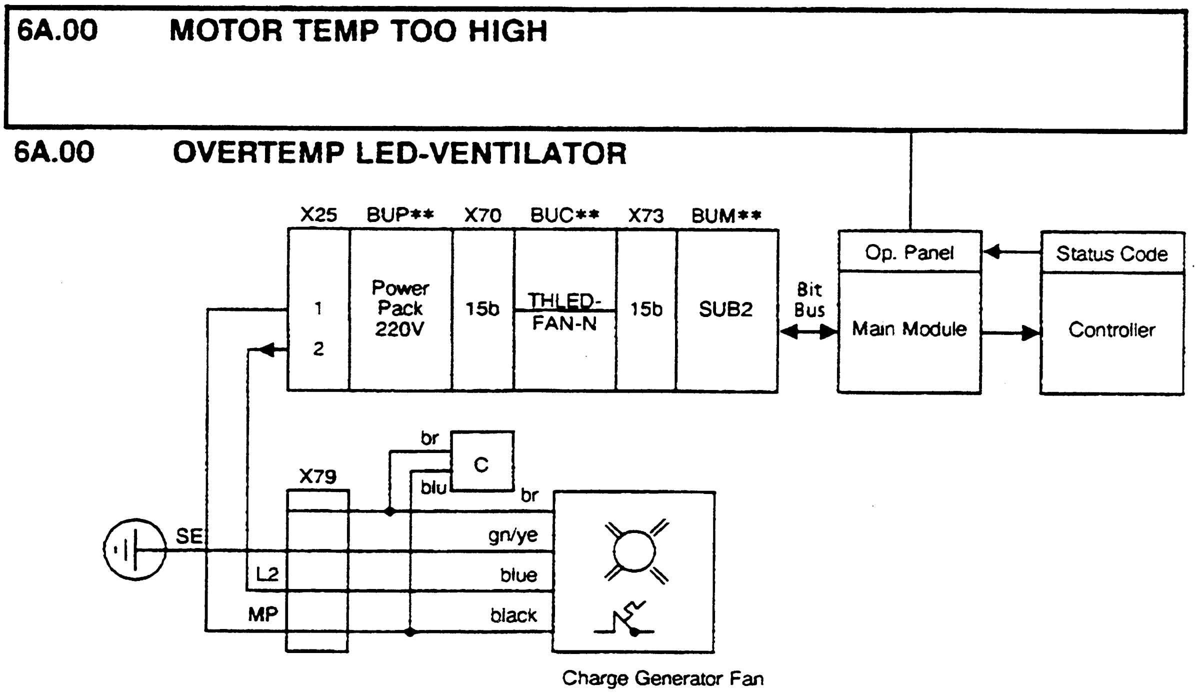

6A.00 MOTOR TEMP TOO HIGH
6A.00 OVERTEMP LED-VENTILATOR
X25
BUP**
X70
BUC**
X73
BUM**
1
2
Power Pack 220V
15b
THLED-FAN-N
15b
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
br
C
blu
br
X79
SE
L2
MP
gn/ye
blue
black
Charge Generator Fan

Figure 3-88. 6A.00 Motor Temp Too High: Overtemp LED-Ventilator

Error Byte: 07/01

Over Temperature at Character Generator Fan

The character generator fan is monitored constantly. In the power circuit of the fan, an optocoupler is positioned on PCB BUP**, which switches through with every positive half wave of the 220V sinusoidal voltage. The processor expects a pulse every 20 ms. If the pulse is missing, error `6A.00 MOTOR TEMP TOO HIGH` is set. The reason for this is the overtemperature of the motor in the LED fan or the missing selection voltage.

The monitoring is always active and, in case of an error, causes a System Restart Required when the paper moves. On the bit bus EMPOFF2 is set; contactor K10 becomes inactive.

Possible Error Causes

- Motor defective or not connected
- Air filter dirty
- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** defective
- Connector PCB BUC** defective
- Power PCB (optocoupler) BUP** defective

6A.01 Motor Temp Too High: Overtemp Devel.Stat.Motor

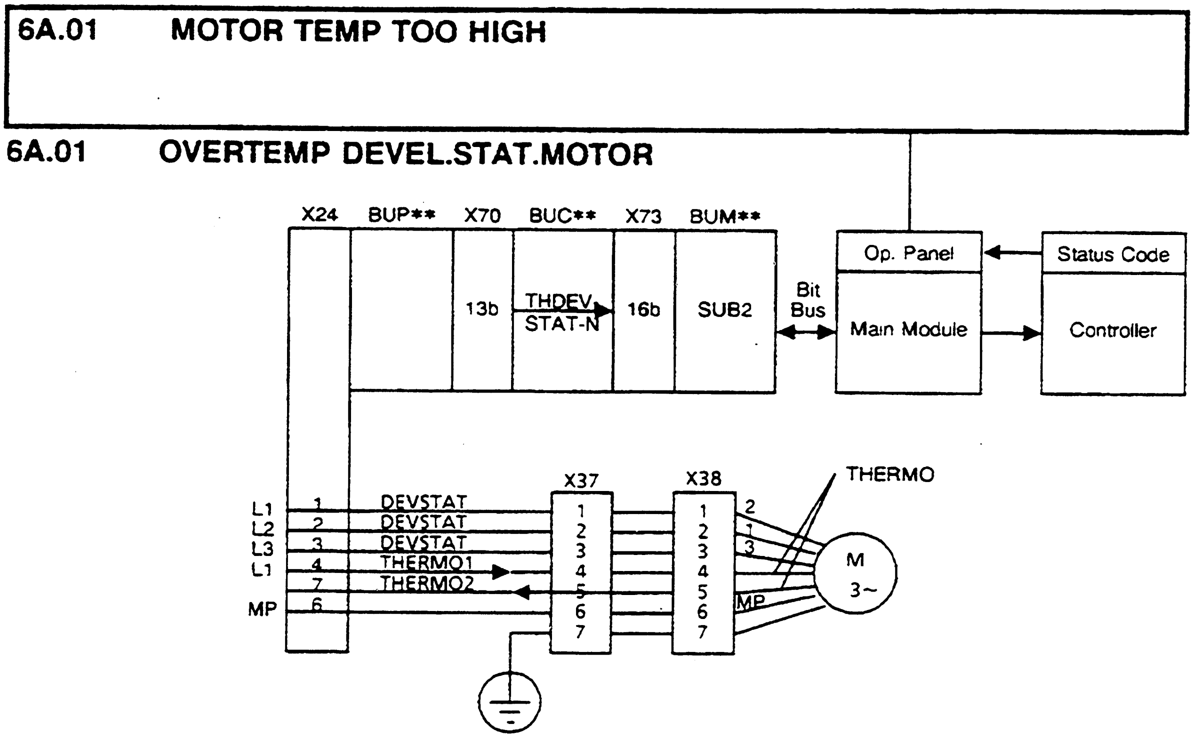

6A.01 MOTOR TEMP TOO HIGH
6A.01 OVERTEMP DEVEL.STAT.MOTOR
X24
BUP**
X70
BUC**
X73
BUM**
13b
THDEV
STAT-N
16b
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
X37
X38
THERMO
L1
L2
L3
L1
MP
DEVSTAT
DEVSTAT
DEVSTAT
THERMO1
THERMO2
M
3~
MP

Figure 3-89. 6A.01 Motor Temp Too High: Overtemp Devel.Stat.Motor

Error Byte: 07/04

Over Temperature at Developer Station Motor

The thermal contact in the developer station motor is monitored by processor PCB BUM** via power supply PCB BUP**. Error message `6A.01 MOTOR TEMP TOO HIGH` is set if the thermal contact is open, the line is interrupted, or L1 (thermal loop) has failed.

The monitoring is always active and, in case of an error, causes a System Restart Required if the paper moves. The printer stops immediately (without correct forms position). EMPOFF2 is set on the bit bus; contactor K10 becomes inactive.

Possible Error Causes

- Line error (short circuit, line breakage, or contact error)
- Motor defective or not connected
- Developer station stiff
- Controller PCB BUM** defective
- Connector PCB BUC** defective
- Power supply PCB BUP** defective
- Developer station not closed

6A.02 Motor Temp Too High: Overtemp Blower

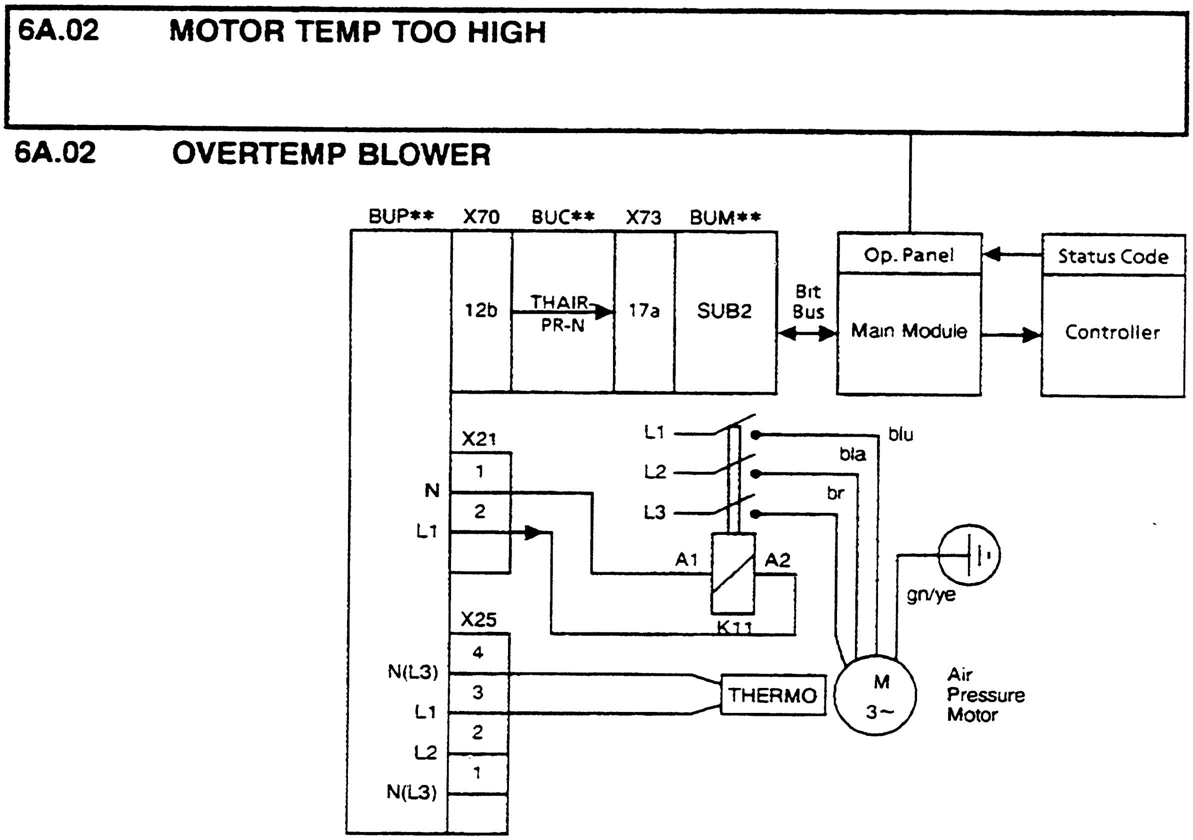

6A.02 MOTOR TEMP TOO HIGH
6A.02 OVERTEMP BLOWER
BUP**
X70
BUC**
X73
BUM**
12b
THAIR
PR-N
17a
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
X21
1
2
N
L1
L1
L2
L3
blu
bla
br
A1
A2
K11
gn/ye
X25
4
3
2
1
N(L3)
L1
L2
N(L3)
THERMO
M
3~
Air Pressure Motor

Figure 3-90. 6A.02 Motor Temp Too High: Overtemp Blower

Error Byte: 07/08

Overtemperature at Vacuum Fan Motor

The thermal contact in the fan motor is monitored by processor PCB BUM** via power supply PCB BUP**. Error message `6A.02 MOTOR TEMP TOO HIGH` is set if the thermal contact is open, the line is interrupted, or L1 (thermal loop) has failed.

The monitoring is always active and, in case of an error, causes a System Restart Required if the paper moves. The printer stops immediately (without correct forms position). EMPOFF2 is set on the bit bus; contactor K10 becomes inactive.

Possible Error Causes

- Line error (short circuit, line breakage, or contact error)
- Motor defective or not connected
- Vacuum fan stiff
- Controller PCB BUM** defective
- Connector PCB BUC** defective
- Power supply PCB BUP** defective
- K11 defective

6A.03 Motor Temp Too High: Overtemp Photoconductor Motor

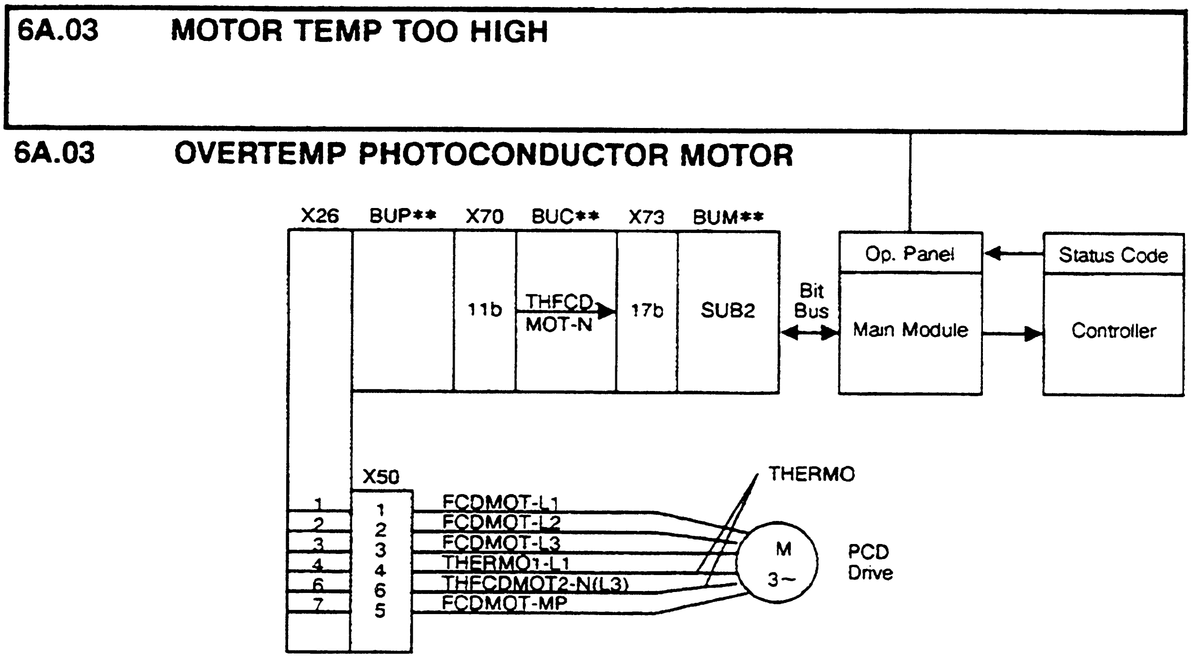

6A.03
MOTOR TEMP TOO HIGH
6A.03
OVERTEMP PHOTOCONDUCTOR MOTOR
X26
BUP**
X70
BUC**
X73
BUM**
11b
THFCD
MOT-N
17b
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
X50
1
2
3
4
6
7
1
2
3
4
6
5
FCDMOT-L1
FCDMOT-L2
FCDMOT-L3
THERMO1-L1
THFCDMOT2-N(L3)
FCDMOT-MP
THERMO
M
3~
PCD Drive

Figure 3-91. 6A.03 Motor Temp Too High: Overtemp Photoconductor Motor

Error Byte: 07/10

Overtemperature at PCD Motor

The thermal contact in the PCD motor is monitored by processor PCB BUM** via power supply PCB BUP**. Error message `6A.03 MOTOR TEMP TOO HIGH` is set if the thermal contact is open, the line is interrupted, or L1 (thermal loop) has failed.

The monitoring is always active and in case of an error it causes a System Restart Required if the paper moves. The printer stops immediately (without correct forms position). EMPOFF2 is set on the bit bus; contactor K10 becomes inactive.

Possible Error Causes

- Line error (short circuit, line breakage, or contact error)
- Motor defective or not connected
- PCD drive stiff
- Controller PCB BUM** defective
- Connector PCB BUC** defective
- Power supply PCB BUP** defective

6A.04 Motor Temp Too High: Overtemp Brush-Clean Motor

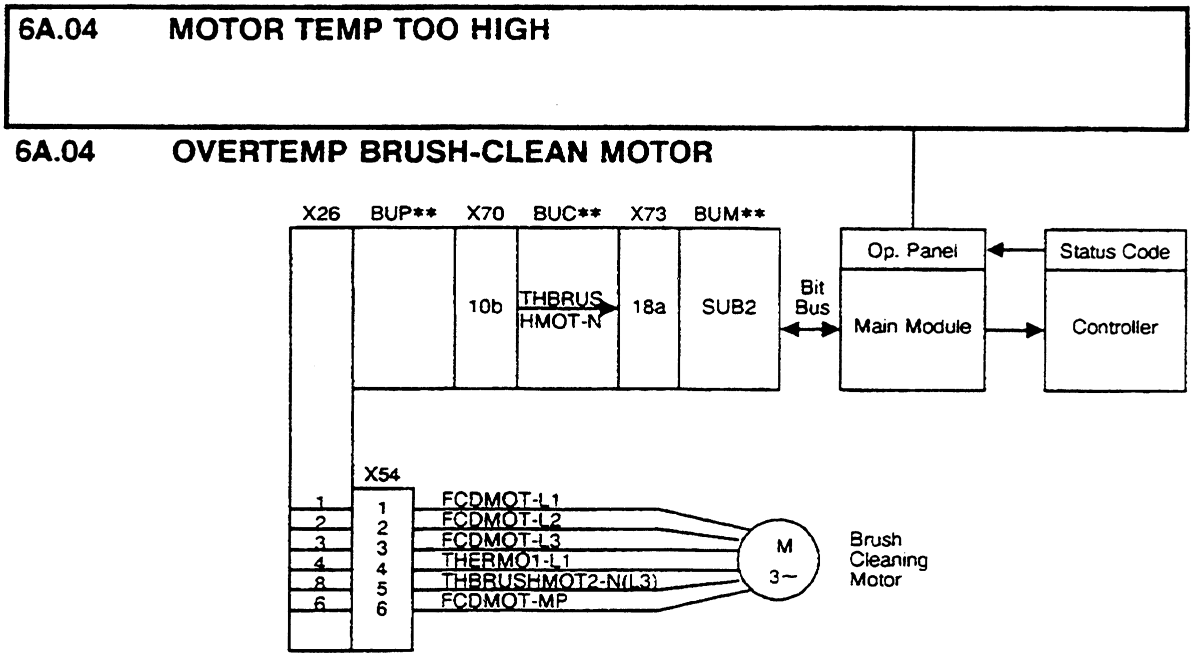

6A.04 MOTOR TEMP TOO HIGH
6A.04 OVERTEMP BRUSH-CLEAN MOTOR
X26
BUP**
X70
BUC**
X73
BUM**
10b
THBRUS
HMOT-N
18a
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
X54
1
2
3
4
8
6
1
2
3
4
5
6
FCDMOT-L1
FCDMOT-L2
FCDMOT-L3
THERMO1-L1
THBRUSHMOT2-N(L3)
FCDMOT-MP
M
3~
Brush Cleaning Motor

Figure 3-92. 6A.04 Motor Temp Too High: Overtemp Brush-Clean Motor

Error Byte: 07/20

Overtemperature at Brush Cleaning Motor

The thermal contact in the brush cleaning motor is monitored by processor PCB BUM** via power supply PCB BUP**. Error message `6A.04 MOTOR TEMP TOO HIGH` is set if the thermal contact is open, the line is interrupted, or L1 (thermal loop) has failed.

The monitoring is always active and, in case of an error, causes a System Restart Required if the paper moves. The printer stops immediately (without correct forms position). EMPOFF2 is set on the bit bus; contactor K10 becomes inactive.

Possible Error Causes

- Line error (short circuit, line breakage, or contact error)
- Motor defective or not connected
- Brush bearing or brush stiff
- Controller PCB BUM** defective
- Connector PCB BUC** defective
- Power supply PCB BUP** defective

6A.05 Motor Temp Too High: Overtemp Tension Drive Motor

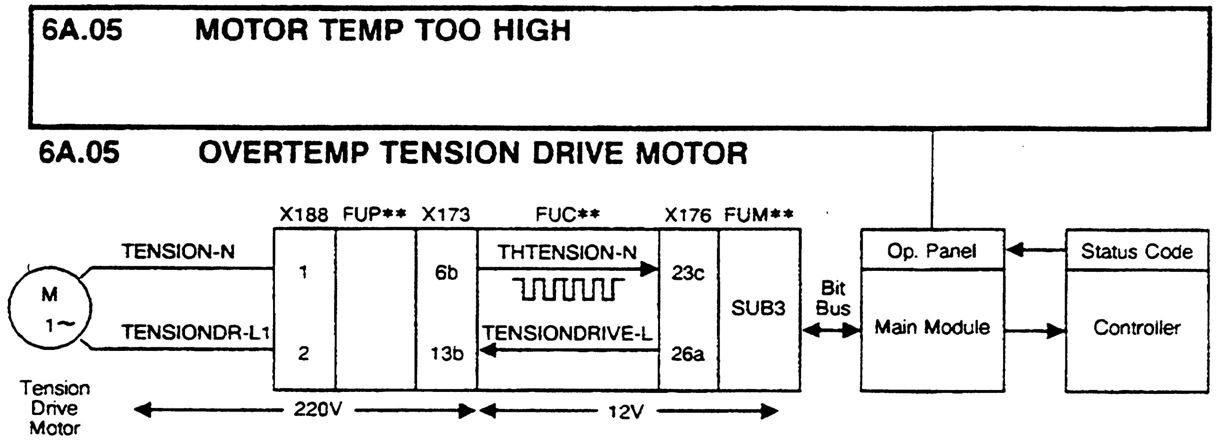

6A.05 MOTOR TEMP TOO HIGH
6A.05 OVERTEMP TENSION DRIVE MOTOR
X188 FUP** X173 FUC** X176 FUM**
TENSION-N
TENSIONDR-L1
M
1~
Tension Drive Motor
1
2
6b
13b
THTENSION-N
TENSIONDRIVE-L
23c
26a
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
220V
12V

Figure 3-93. 6A.05 Motor Temp Too High: Overtemp Tension Drive Motor

Error Byte: 20/04

Overtemperature at Tension Drive Motor (Paper Input)

On power supply PCB FUP**, the tension drive motor circuit features an optocoupler which generates a signal frequency (12V/50/60Hz) from the line frequency (110V/60Hz, 220V/50Hz). This signal frequency (THTENSION-N) is evaluated by the controller PCB FUM **. An error is generated when the tension drive motor is activated with the signal TENSIONDRIVE-L and the controller PCB FUM** does not detect a signal frequency on signal line THTENSION-L.

The tension drive motor is an impedance-protected motor without thermal contact.

Tension drive motor activated	⇒ signal TENSIONDRIVE-L = 0V
Tension drive motor not activated	⇒ signal TENSIONDRIVE-L = +12V

Possible Error Causes

- Line error (short circuit, line breakage, or contact error)
- Motor defective or not connected
- Power supply PCB FUP** defective
- Controller PCB FUM** defective
- Connector PCB FUC** defective

6A.06 Motor Temp Too High: Overtemp Stacker Drive Motor

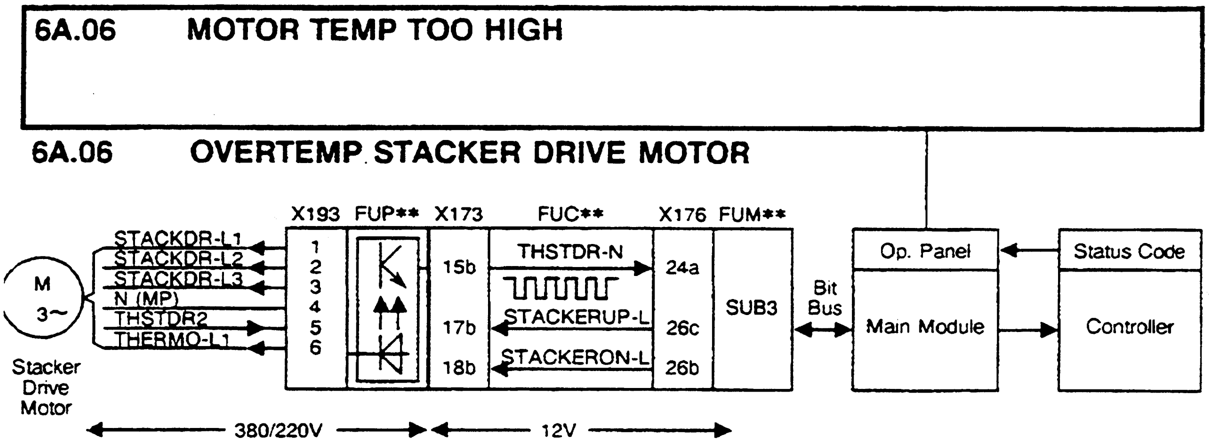

6A.06 MOTOR TEMP TOO HIGH
6A.06 OVERTEMP STACKER DRIVE MOTOR
X193
FUP**
X173
FUC**
X176
FUM**
STACKDR-L1
STACKDR-L2
STACKDR-L3
N (MP)
THSTDR2
THERMO-L1
M
3~
Stacker Drive Motor
1
2
3
4
5
6
15b
17b
18b
THSTDR-N
STACKERUP-L
STACKERON-L
24a
26c
26b
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
380/220V
12V

Figure 3-94. 6A.06 Motor Temp Too High: Overtemp Stacker Drive Motor

Error Byte: 20/08

Overtemperature at Stacker Drive Motor (Stacker Upper Part)

The stacker drive motor is a three-phase motor with thermal contact. The thermal contact is supplied with 220V via line THERMO-L1. If the thermal contact is closed, signal THSTDR2 (220V) is converted by an optocoupler on power supply PCB FUP** into signal THSTDR-N (12V), which is then evaluated by the controller PCBFUM**. An error is generated when the stacker drive motor is activated with signal STACKERON-L, and the controller PCB FUM** does not detect low pulses in the AC frequency on the signal line.

Stacker table moves down ⇒ signal STACKERON-L = 0V and STACKERUP-L = +12V
Stacker table moves up ⇒ signal STACKERON-L = 0V and STACKERUP-L = 0V
Stacker table does not move ⇒ signal STACKERON-L = +12V

Possible Error Causes

- Line error (short circuit, line breakage, or contact error)
- Motor overheated or defective
- Power supply PCB FUP** defective
- Controller PCB FUM** defective
- Connector PCB FUC** defective

6A.07 Motor Temp Too High: Overtemp Stacker Swing Motor

6A.07 MOTOR TEMP TOO HIGH

6A.07 OVERTEMP STACKER SWING MOTOR

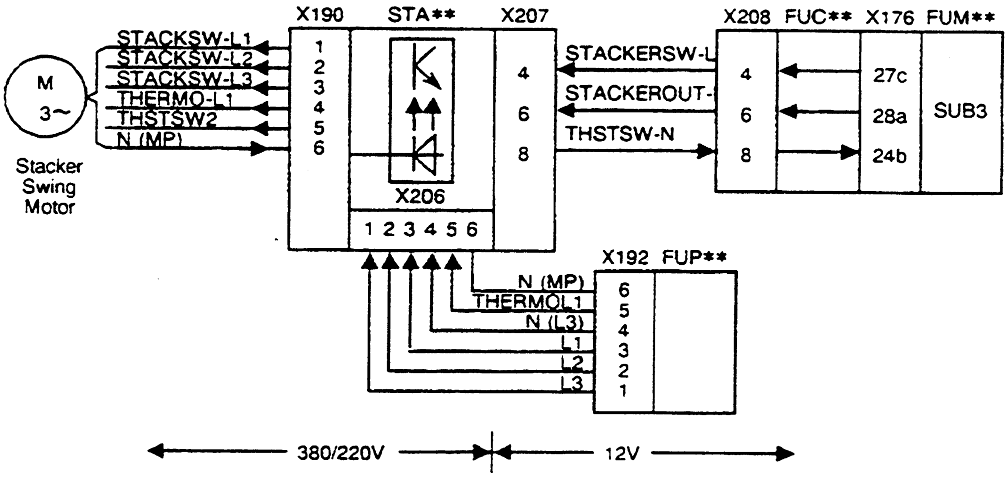

X190
STA**
X207
X208
FUC**
X176
FUM**
M
3~
Stacker Swing Motor
STACKSW-L1
STACKSW-L2
STACKSW-L3
THERMO-L1
THSTSW2
N (MP)
1 2 3 4 5 6
X206
1 2 3 4 5 6
4 6 8
STACKERSW-L
STACKEROUT-L
THSTSW-N
4 6 8
27c
28a
24b
SUB3
X192 FUP**
N (MP)
THERMOL1
N (L3)
L1
L2
L3
6 5 4 3 2 1
380/220V
12V

Figure 3-95. 6A.07 Motor Temp Too High: Overtemp Stacker Swing Motor

Error Byte: 20/10 not yet realized

Overtemperature at Stacker Swing Motor

The stacker swing motor for the slewable stacker table is a three-phase motor with thermal contact. The thermal contact is supplied with 220V via line THERMO-L1. If the thermal contact is closed, signal THSTSW2 (220V) is converted by an optocoupler on power supply PCB FUP** into signal THSTSW-N (12V), which is then evaluated by the controller PCB FUM**. An error is generated when the stacker swing motor is activated with signal STACKERSW-L and the controller PCB FUM** does not detect Low pulses in the AC frequency on the signal line.

Stacker table moves down ⇒ signal STACKERSW-L = 0V and STACKEROUT-L = +12V
Stacker table moves up ⇒ signal STACKERSW-L = 0V and STACKEROUT-L = 0V
Stacker table does not move ⇒ signal STACKERSW-L = +12V

Possible Error Causes

- Line error (short circuit, line breakage, or contact error)
- Motor overheated or defective
- Controller PCB FUM** defective
- Connector PCB FUC** defective
- Power supply PCB FUP** defective

6D.00 Toner Mark Not Detected

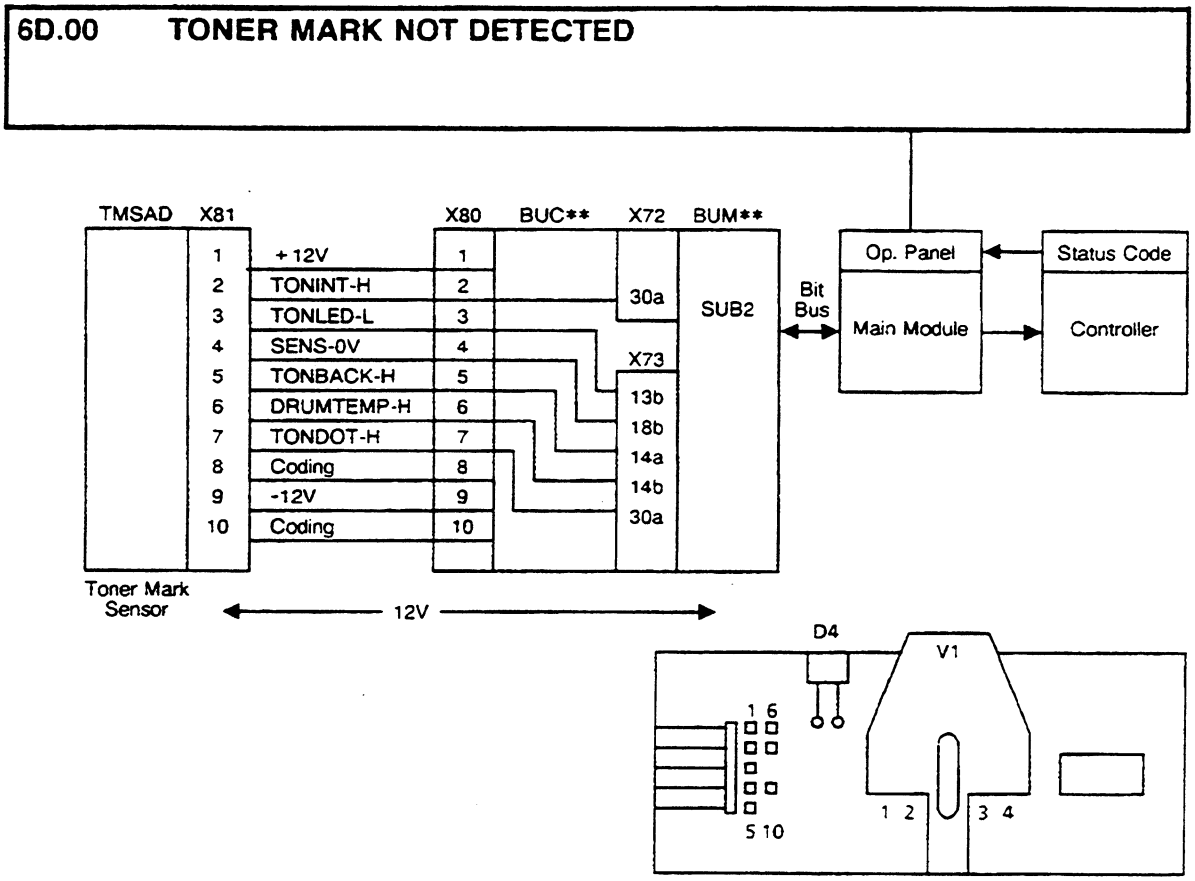

6D.00 TONER MARK NOT DETECTED
TMSAD
X81
X80
BUC**
X72
BUM**
1
2
3
4
5
6
7
8
9
10
+12V
TONINT-H
TONLED-L
SENS-0V
TONBACK-H
DRUMTEMP-H
TONDOT-H
Coding
-12V
Coding
30a
X73
13b
18b
14a
14b
30a
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Toner Mark Sensor
12V
D4
V1
1 6
5 10
1 2
3 4

Figure 3-96. 6D.00 Toner Mark Not Detected

Error Byte 12/01

Toner Mark on the PCD Was Not Detected

The toner mark is expected in a period of 50 ms. The position results from print start as system constant; for every further toner mark, it depends on the paper length.

If no toner mark is detected, the printer stops with System Restart Required and correct forms position.

Possible Error Causes

- Exposure (protective cover character generator)
- Charge
- Sensor defective or dirty
- Wrong position
- Toner mark sensor defective, dirty, or misadjusted

- Character generator does not generate a toner mark (exposure, protective cover character generator)
- PCD charge
- Toner mark position shifted
- Developer station defective
- PCD defective
- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** defective
- Connector PCB BUC** defective

6E.00 Fumes

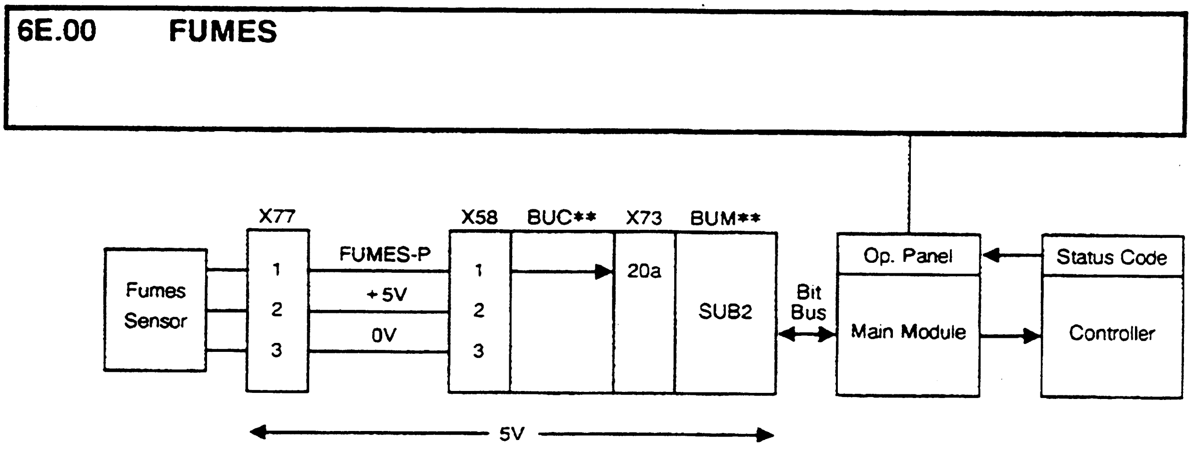

6E.00 FUMES
X77
X58
BUC**
X73
BUM**
Fumes Sensor
1
2
3
FUMES-P
+5V
0V
1
2
3
20a
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V

Figure 3-97. 6E.00 Fumes

Error Byte: 08/80

Toner Dust in Blown Out Air

When the main fan is switched on, the air flow at the fine filter exit is monitored by a light barrier of the fumes sensor for contamination.

If the light barrier is interrupted, the printer stops at once and the error message 6E.00 FUMES is set. If paper moves, System Restart Required is messaged; no restart is possible until the sensor is cleaned.

Possible Error Causes

- Sensor dirty ⇒ clean with pipe cleaner
- Line error (short circuit, line breakage, or contact error)
- Fine filter defective
- Sensor defective
- Controller PCB BUM** defective
- Connector PCB BUC** defective

76.01 LED Array Hardware Error: Carriage Position Error

76.01 LED ARRAY HARDWARE ERROR

76.01 CARRIAGE POSITION ERROR

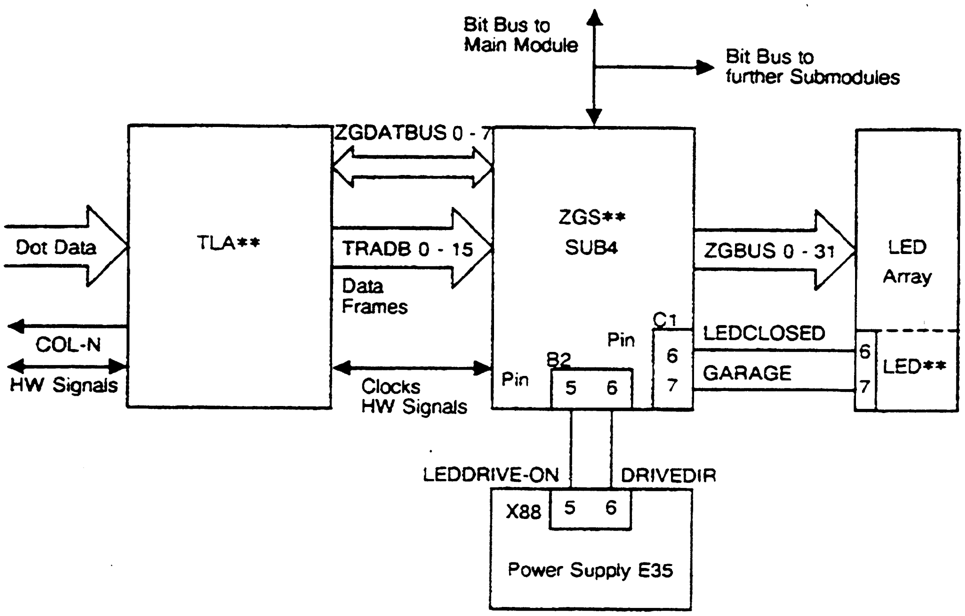

Bit Bus to Main Module
Bit Bus to further Submodules
ZGDATBUS 0 - 7
Dot Data
TLA**
TRADB 0 - 15
Data Frames
ZGS**
SUB4
ZGBUS 0 - 31
LED Array
COL-N
HW Signals
Clocks HW Signals
Pin
B2
5 6
Pin
C1
6 7
LEDCLOSED
GARAGE
6 7
LED**
LEDDRIVE-ON
DRIVEDIR
X88
5 6
Power Supply E35

Figure 3-98. 76.01 LED Array Hardware Error: Carriage Position Error

Error Byte: 24/40

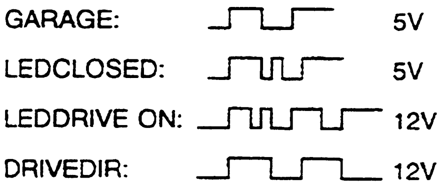
Carriage Finds No Defined Position; SELFOC Closed

After manufacturing, the diodes on the LED array have different light outputs, which may become visible in the printout. The light output of every diode can be changed as required. Thus the different light outputs can be compensated.

A carriage driven by a synchronous motor measures the light output using of a light-sensitive sensor; the carriage also serves to open and close the SELFOC screen. If no measurement is taken, the carriage stands at defined positions in the garage. In the position *garage*, the screen is open; in the final position, it is closed (LEDCLOSED). If such a defined carriage position cannot be reached or detected, an error message is set. An error is also set if the light of an LED can be measured during a measurement procedure, although the chip to be measured has not yet been reached (carriage positioned incorrectly), or if the two outermost LEDs of a chip cannot be detected by the sensor.

Possible Error Causes

- Supply and driver voltage (5V/3.14V)
- Wiring of LED array
- Position not reached (Measuring carriage stuck or guide groove heavily soiled)
- Sensor touches foreign body (for example, toner)
- Reflection of light in silicon layer
- If the carriage moves, check signals NETZCL (clock X88 pin 7/8), GARAGE, LEDCLOSED (oscilloscope 100 mV/cm; position at carriage 1ms/cm after power-on)
- If the carriage does not move, check signals LEDDRIVEON and DRIVEDIR



76.09 LED Array Hardware Error: A/D Converter Error

76.09	LED ARRAY HARDWARE ERROR

76.09 A/D CONVERTER ERROR

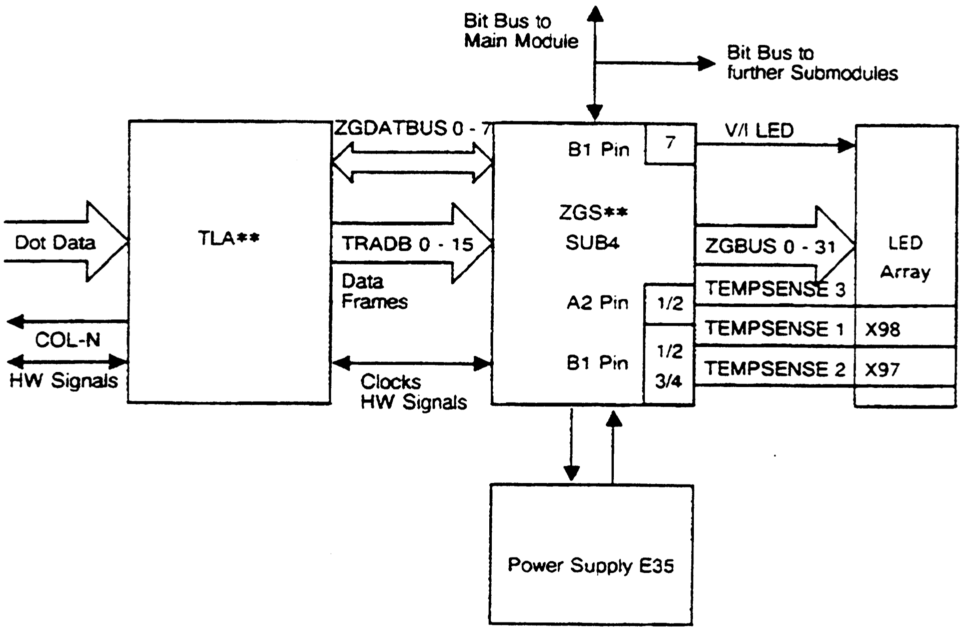

Bit Bus to Main Module
Bit Bus to further Submodules
ZGDATBUS 0 - 7
B1 Pin
7
V/I LED
Dot Data
TLA**
TRADB 0 - 15
Data Frames
ZGS**
SUB4
ZGBUS 0 - 31
LED Array
A2 Pin
1/2
TEMPSENSE 3
COL-N
TEMPSENSE 1
X98
HW Signals
Clocks HW Signals
B1 Pin
1/2
3/4
TEMPSENSE 2
X97
Power Supply E35

Figure 3-99. 76.09 LED Array Hardware Error: A/D Converter Error

Error Byte: 24/20

A/D Converter on PCB ZGS** Does Not Stop

PCB ZGS** controls the temperature and drive current of the LED array. In order to evaluate the analog values of the temperature sensors on PCB ZGS**, analog/digital converters are necessary. The same is necessary (vice versa) for the drive current V/I LED. If such an A/D conversion is not terminated within a certain period of time (100 microseconds), an error is set.

Possible Error Causes

- Supply voltage (5V pin 27, 12V pin 10)
- Wiring -PCB ZGS**

76.0A LED Array Hardware Error: Threshold Bef./Beh. First 2 Chips

76.0A	**LED ARRAY HARDWARE ERROR**

76.0A THRESHOLD BEF. OR BEH. FIRST 2 CHIP

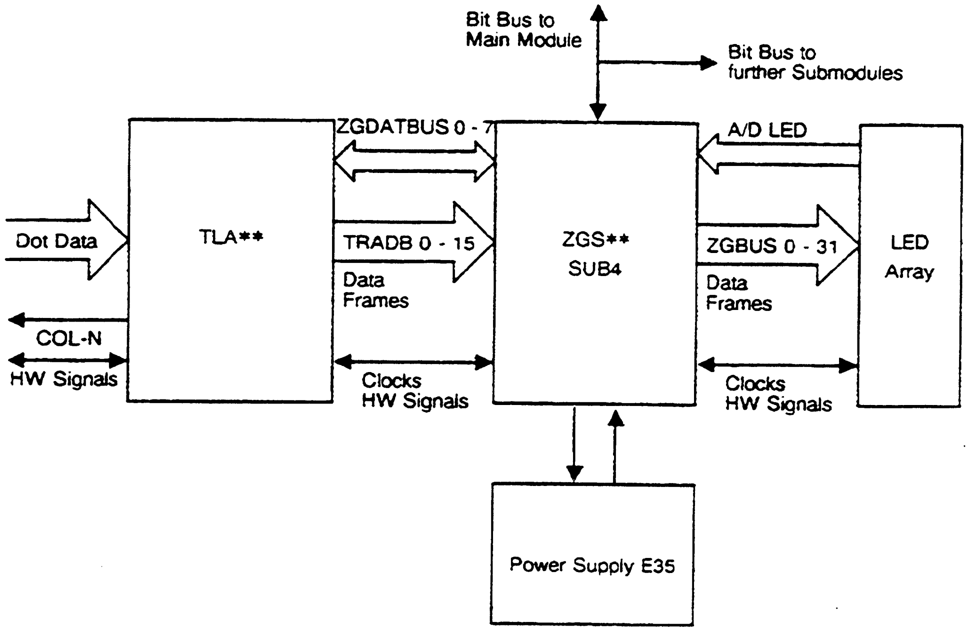

Bit Bus to
Main Module
Bit Bus to
further Submodules
ZGDATBUS 0 - 7
A/D LED
Dot Data
TLA**
TRADB 0 - 15
Data
Frames
ZGS**
SUB4
ZGBUS 0 - 31
Data
Frames
LED
Array
COL-N
HW Signals
Clocks
HW Signals
Clocks
HW Signals
Power Supply E35

Figure 3-100. 76.0A LED Array Hardware Error: Threshold Bef./Beh. First 2 Chips

Error Byte: 25/01

Light Output Error

Light Sensor Detects Threshold Value Already in Garage; The Threshold Value is Found in the First 2 Chips; Foreign Light Source

After manufacturing, the diodes on the LED array have different light outputs, which may become visible in the printout. The light output of every diode can be changed as required. Thus the different light outputs can be compensated. A carriage driven by a synchronous motor measures the light output using a light-sensitive sensor.

To measure the light output, the surrounding area of the sensor/SELFOC must be completely dark. Before the measurement it checks whether light already in the garage can be measured. After the measurement, foreign light is also measured at the operator panel side. During the alignment process, it also checks whether the brightest LED can be aligned. If not, foreign light is measured here too. If foreign light is detected, an error message is set.

Possible Error Causes

- Foreign light sources
- Defective A/D converter
- PCB ZGS**
- Deviation of measuring values greater than 3% during second measurement when carriage travels back

76.0C LED Array Hardware Error: Software Runtime Error

76.0C LED ARRAY HARDWARE ERROR

76.0C SOFTWARE RUNTIME ERROR

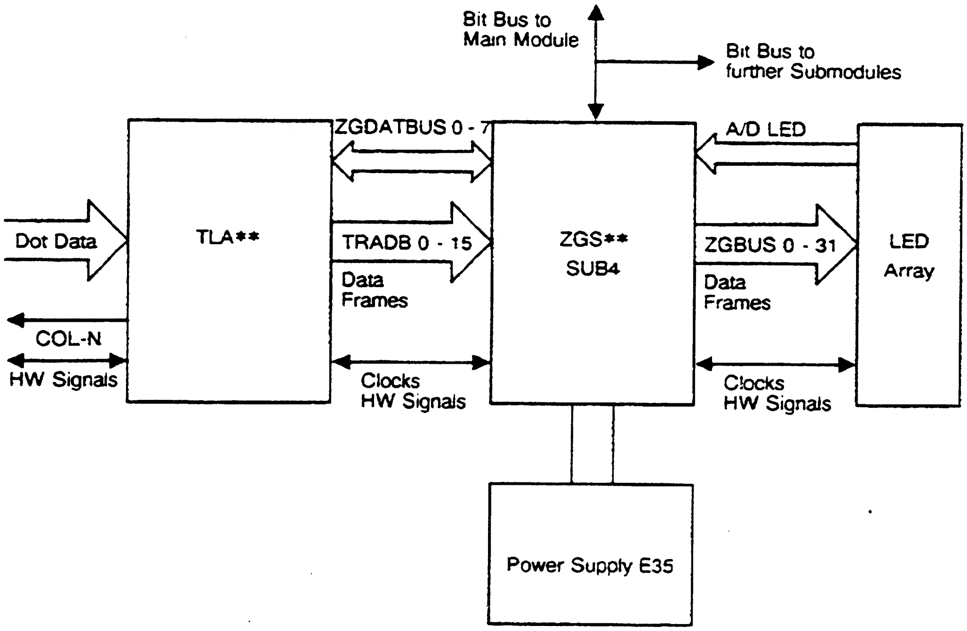

Bit Bus to Main Module
Bit Bus to further Submodules
TLA**
ZGDATBUS 0 - 7
TRADB 0 - 15
Data Frames
Clocks HW Signals
ZGS**
SUB4
A/D LED
ZGBUS 0 - 31
Data Frames
Clocks HW Signals
LED Array
Dot Data
COL-N
HW Signals
Power Supply E35

Figure 3-101. 76.0C LED Array Hardware Error: Software Runtime Error

Error Byte: 25/08

Wrong Impulse-Break-Relation at LED Measurement

After manufacturing, the diodes on the LED array have different light outputs, which may become visible in the printout. The light-emitting period of every diode (K value) and the control current of the IC on which the 64 LEDs are mounted (L value) can be changed as required. Thus the different light outputs can be compensated. A carriage driven by a synchronous motor measures the light output using a light-sensitive sensor.

The speed with which the individual LEDs are switched on, one after the other, for the measuring process is mainly determined by the mains frequency (50 or 60 Hz synchronous motor). An exact synchronization of the LED running light and the sensor on the carriage is necessary for an exact measurement of the light output of the individual diodes.

To power-on the diodes, interrupts according to an adjustable period (time base) are generated. If the impulse/break relation changes so that the interrupt breaks become shorter compared with the interrupt period, an error is set set. The interrupt routine is not yet terminated and a new interrupt is already waiting.

Possible Error Causes

- Supply voltage (5V pin 27, 12V pin 10)
- Wiring
- PCB ZGS**

76.0D LED Array Hardware Error: Synchronization Error

76.0D LED ARRAY HARDWARE ERROR

76.0D SYNCHRONISATION ERROR

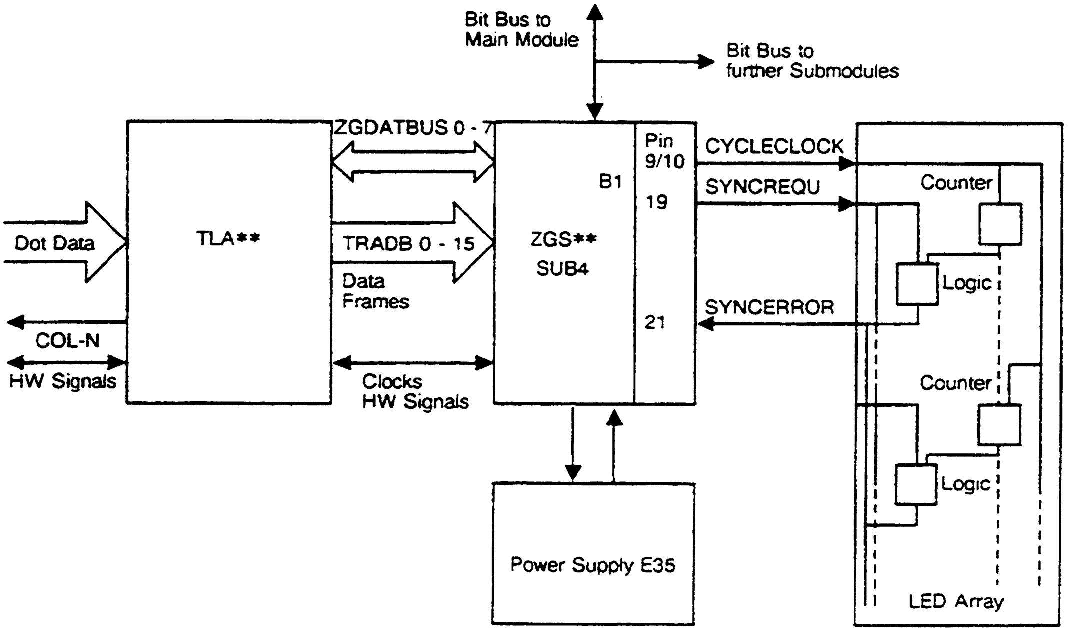

Bit Bus to Main Module
Bit Bus to further Submodules
ZGDATBUS 0 - 7
Dot Data
TLA**
TRADB 0 - 15
Data Frames
COL-N
HW Signals
Clocks HW Signals
B1
ZGS**
SUB4
Pin 9/10
19
21
CYCLECLOCK
SYNCREQU
SYNCERROR
Counter
Logic
Counter
Logic
LED Array
Power Supply E35

Figure 3-102. 76.0D LED Array Hardware Error: Synchronization Error

Error Byte: 26/02

Synchronization Error Between PCB ZGS** and LED Array

The data that is transferred from the controller to the PCB TLA** is converted by PCB TLA** into the data format necessary for the LED array. The data is read out of the cache RAM corresponding to the addresses of the Read-Address-Counter. The data sequence is determined by the Read-Address-Counter as well as by the phase address.

The data read out of the cache in this way is transferred via the PCB ZGS** to the corresponding bus latches on the controller ICs in the LED array. During the data transfer, the hardware monitors whether the character generator address counter and the counter on the PCB ZGS** coincide. In order to check this, the signal SYNCREQUEST is compared with the overflow of the 8-bit counter on the controller IC. Furthermore, the synchronization of all counters on the ICs is monitored; if a deviation is detected, an error is set.

Possible Error Causes

- Wiring
- No signal SYNCREQU-P (1ms/cm; 20mV/cm) clock on oscilloscope
- Signal SYNCERROR-N is static or (1 ms/cm; 20 mV/cm) clock on oscilloscope
- Wrong or disturbed cycleclock
- LED array

76.0E LED Array Hardware Error: Carriage Too Slow or Too Fast

76.0E LED ARRAY HARDWARE ERROR

76.0E CARRIAGE TOO SLOW OR TOO FAST

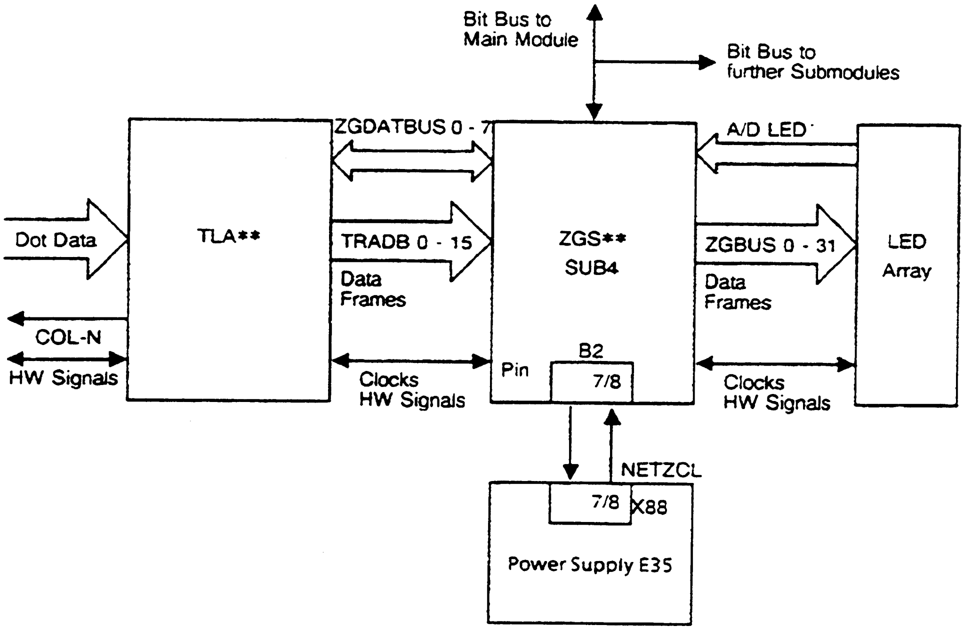

Bit Bus to
Main Module
Bit Bus to
further Submodules
ZGDATBUS 0 - 7
A/D LED
Dot Data
TLA**
TRADB 0 - 15
Data
Frames
ZGS**
SUB4
ZGBUS 0 - 31
Data
Frames
LED
Array
COL-N
HW Signals
Clocks
HW Signals
Pin
B2
7/8
Clocks
HW Signals
NETZCL
7/8
X88
Power Supply E35

Figure 3-103. 76.0E LED Array Hardware Error: Carriage Too Slow or Too Fast

Error Byte: 27/04

Carriage Too Slow or Too Fast

After manufacturing, the diodes on the LED array have different light outputs, which may become visible in the printout. It is possible to change the light-emitting period as well as the control current of the IC as required. Thus the different light outputs can be compensated. A carriage driven by a synchronous motor measures the light output using a light-sensitive sensor.

The speed with which the individual LEDs are switched on, one after the other, for the measuring process is mainly determined by the mains frequency (50 or 60 Hz synchronous motor). An exact synchronization of the LED running light and the sensor on the carriage is necessary for an exact measurement of the light output of the individual diodes.

Since, however, the interval for power-on generated by a timer is subject to oscillations, a relative movement between the sensor and running light results. This leads—over the whole length of the array—to incorrect positioning of the carriage. For this reason, the software checks the sensor position several times during the measurement and positions the sensor correctly again. The individual measuring intervals are called asynchronous intervals. If a deviation of the synchronous movement between the running light and carriage occurs during such an asynchronous interval (carriage too slow or too fast), an error is set.

Possible Error Causes

- Wiring
- Belt drive of carriage
- Mains frequency (see also error message 76.0F)

76.0F LED Array Hardware Error: Improper Mains Frequency

76.0F	**LED ARRAY HARDWARE ERROR**

76.0F INPROPER MAINS FREQUENCY

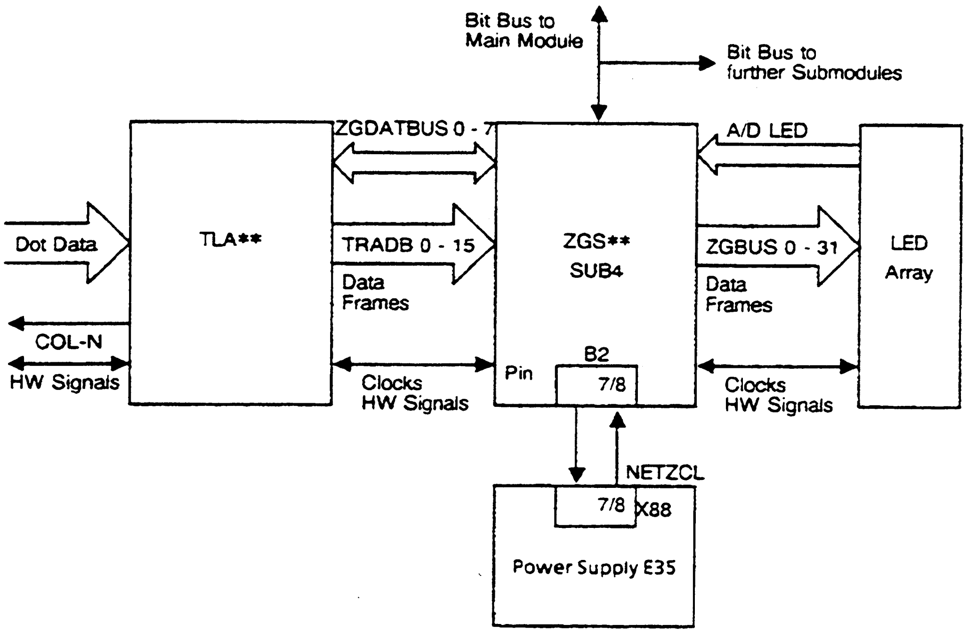

Bit Bus to Main Module
Bit Bus to further Submodules
ZGDATBUS 0 - 7
A/D LED
Dot Data
TLA**
TRADB 0 - 15
Data Frames
ZGS**
SUB4
ZGBUS 0 - 31
Data Frames
LED Array
COL-N
HW Signals
Clocks HW Signals
Pin
B2
7/8
Clocks HW Signals
NETZCL
7/8
X88
Power Supply E35

Figure 3-104. 76.0F LED Array Hardware Error: Improper Mains Frequency

Error Byte: 27/08

Mains Frequency on PCB ZGS** Cannot Be Adjusted

After manufacturing, the diodes on the LED array have different light outputs, which may become visible in the printout. It is possible to change the light-emitting period as well as the control current of the IC as required. Thus the different light outputs can be compensated. A carriage driven by a synchronous motor measures the light output using a light-sensitive sensor.

The speed with which the individual LEDs are switched on, one after the other, for the measuring process is mainly determined by the mains frequency (50 or 60 Hz synchronous motor). An exact synchronization of the LED running light and the sensor on the carriage is necessary for an exact measurement of the light output of the individual diodes. Since, however, the interval for power-on generated by a timer is subject to oscillations, a relative movement between the sensor and running light results. This leads—over the whole length of the array—to the incorrect positioning of the carriage. For this reason, the software checks the sensor position several times during the measurement and positions the sensor correctly again. The individual measuring intervals are called asynchronous intervals. If the PCB internal error code 73H or 75H (carriage too fast/slow) is set during measurement, the mains frequency is checked. The carriage is moved for a certain time (5 seconds); during this interval, the mains periods are measured. The mains frequency can be calculated from this. If the measured mains frequency coincides with the one set beforehand (NV-RAM) or if an invalid frequency results, an error is set. If the frequency does not coincide with the one set beforehand, a new frequency is entered into the NV-RAM (50 Hz/60 Hz).

Possible Error Causes

- Mains frequency

76.11 LED Array Hardware Error: Error During Data Load Cycle

76.11 LED ARRAY HARDWARE ERROR

76.11 ERROR DURING DATA LOAD CYCLE

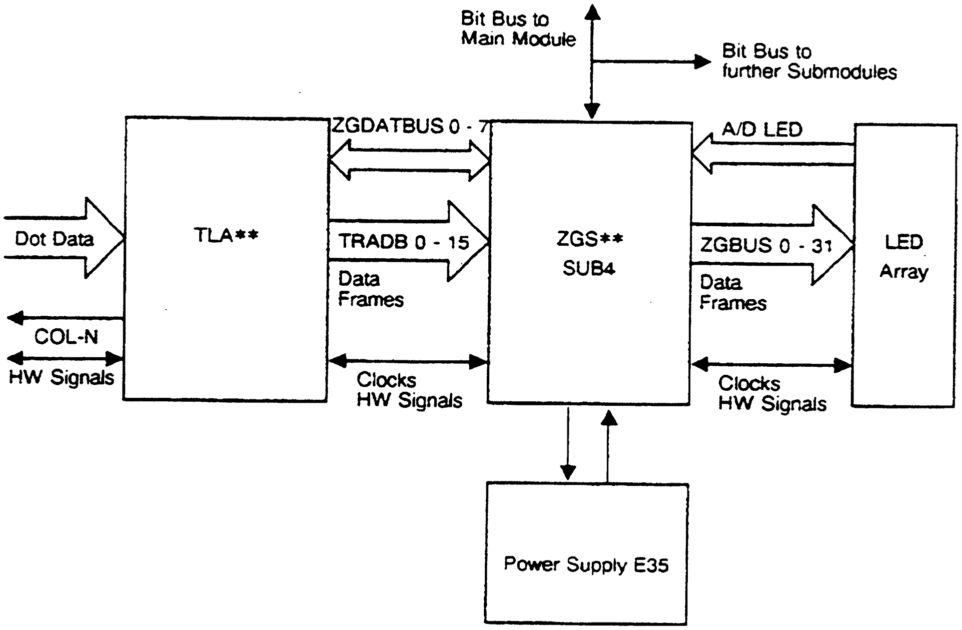

Bit Bus to
Main Module
Bit Bus to
further Submodules
ZGDATBUS 0 - 7
A/D LED
Dot Data
TLA**
TRADB 0 - 15
Data
Frames
ZGS**
SUB4
ZGBUS 0 - 31
Data
Frames
LED
Array
COL-N
HW Signals
Clocks
HW Signals
Clocks
HW Signals
Power Supply E35

Figure 3-105. 76.11 LED Array Hardware Error: Error During Data Load Cycle

Error Byte: 27/80

Charge Status Begin/Does Not Stop/Triggered Again

After manufacturing, the diodes on the LED array have different light outputs, which may become visible in the printout. The light-emitting period of every diode (K value) and the control current of the IC on which the 64 LEDs are mounted (L value) can be changed as required. Thus the different light outputs can be compensated.

A carriage driven by a synchronous motor measures the light output using a light sensitive sensor. The measured values for the light output determined in this way are stored individually for each LED in order to calculate the correction values. Right before printing is started, the correction values are transferred via the output RAM on the PCB ZGS** to the LED array. If the charge is already applied before CYCLECLOCK or if the charging process does not stop, an error message is set. This error is also set if the charge process is triggered again.

Possible Error Causes

- Supply voltage (5V pin 27, 12V pin 10)
- Wiring
- Signal LOAD ENABLE (B1 pin 13 on PCB ZGS**)
- PCB ZGS**

76.12 LED Array Hardware Error: DMA Error

76.12 LED ARRAY HARDWARE ERROR

76.12 DMA ERROR

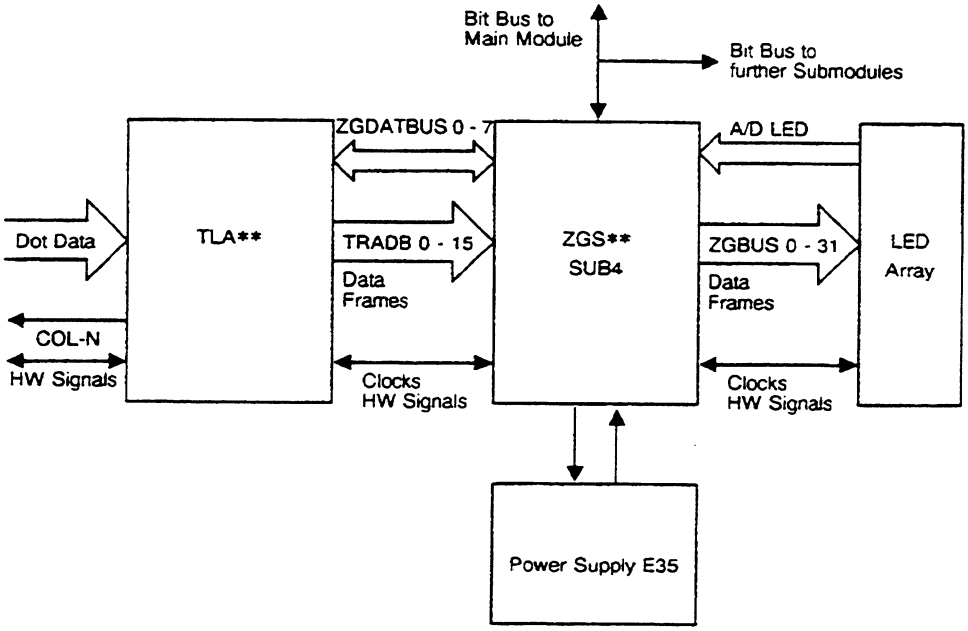

Bit Bus to Main Module
Bit Bus to further Submodules
ZGDATBUS 0 - 7
A/D LED
Dot Data
TLA**
TRADB 0 - 15
Data Frames
ZGS**
SUB4
ZGBUS 0 - 31
Data Frames
LED Array
COL-N
HW Signals
Clocks HW Signals
Clocks HW Signals
Power Supply E35

Figure 3-106. 76.12 LED Array Hardware Error: DMA Error

Error Byte: 27/40

Internal DMA Does Not Stop/Triggered Again

Internal DMS data transfer (charge process) on PCB ZGS** does not stop or is triggered again:

The print data, which is transferred to the LED array by the translator PCB, is only passed by a logic OR gate on the PCB ZGS**. Thus the direct print process from a PROM on the PCB ZGS**, as well as entering the correction values into control ICs on the LED array, becomes possible.

The data/storage management of the output RAM, the NV-RAM, and the PROM for the direct print test is carried out via a DMA control. If the internal DMA data transfer (charge process) does not stop or is triggered again, an error message is set.

Possible Error Causes

- Supply voltage (5V pin 27, 12V pin 10)
- Wiring
- PCB ZGS**

76.13 LED Array Hardware Error: Firmware Parameter Error

76.13	**LED ARRAY HARDWARE ERROR**

76.13 FIRMWARE PARAMETER ERROR

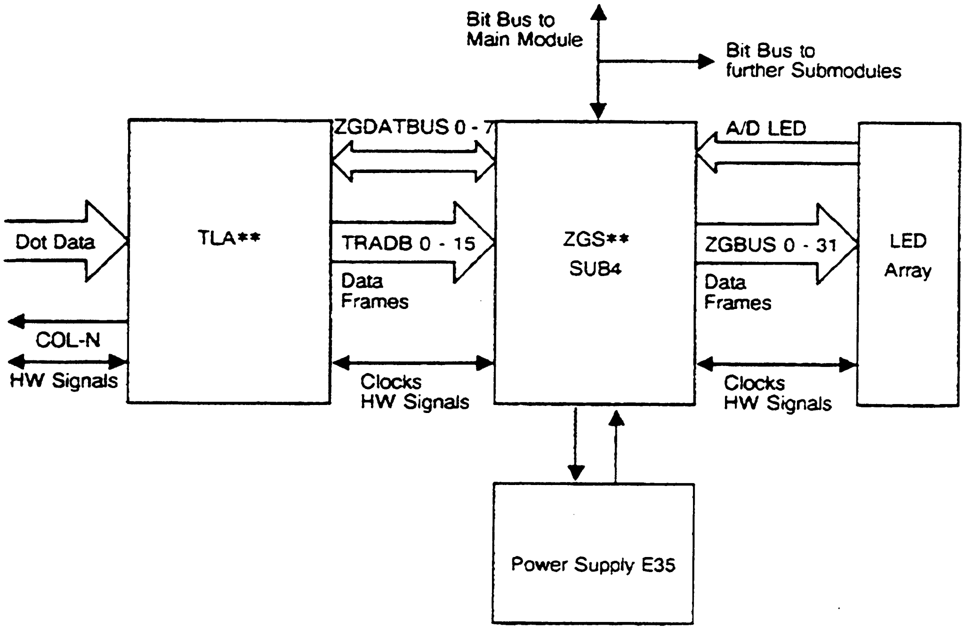

Bit Bus to Main Module
Bit Bus to further Submodules
ZGDATBUS 0 - 7
A/D LED
Dot Data
TLA**
TRADB 0 - 15
Data Frames
ZGS**
SUB4
ZGBUS 0 - 31
Data Frames
LED Array
COL-N
HW Signals
Clocks HW Signals
Clocks HW Signals
Power Supply E35

Figure 3-107. 76.13 LED Array Hardware Error: Firmware Parameter Error

Error Byte: 24/01

Chip Module Addressing/Internal Parameters Incorrect

The data and address editing necessary for the LED array to trigger the individual LEDs requires a substantial manipulation of the most versatile parameters. Thus, for example, the parameters for chip and/or module addressing, for setting the correct operation mode, for initializing the translator, for storage addressing, and so forth, must be set correctly.

If these parameters are not initialized correctly, an error message is set. The parameters necessary for manipulation of the correction values and movement of the carriage are checked also.

Possible Error Causes

- Supply voltage (5V pin 27, 12V pin 10)
- Wiring
- PCB ZGS**

76.18 LED Array Hardware Error: Approximation Not Possible

76.18	**LED ARRAY HARDWARE ERROR**

76.18 APPROXIMATION NOT POSSIBLE

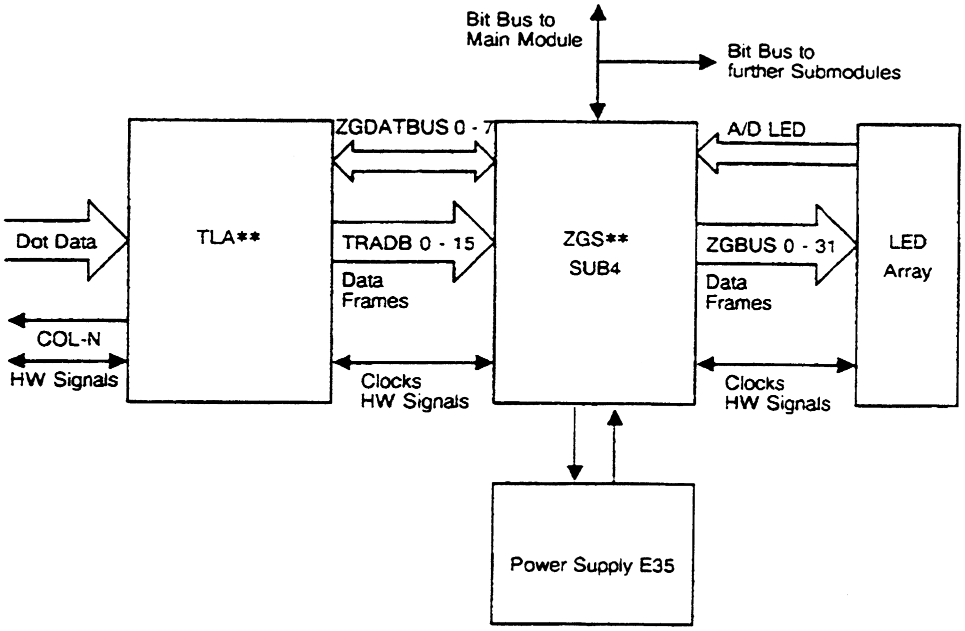

Bit Bus to
Main Module
Bit Bus to
further Submodules
ZGDATBUS 0 - 7
A/D LED
Dot Data
TLA**
TRADB 0 - 15
Data
Frames
ZGS**
SUB4
ZGBUS 0 - 31
Data
Frames
LED
Array
COL-N
HW Signals
Clocks
HW Signals
Clocks
HW Signals
Power Supply E35

Figure 3-108. 76.18 LED Array Hardware Error: Approximation Not Possible

Error Byte: 25/02

Chip Has a Value Less Than 6 After L (current) Alignment

After manufacturing, the diodes on the LED array have different light outputs, which may become visible in the printout. The light-emitting period of every diode (K value) and the control current of the IC on which the 64 LEDs are mounted (L value) can be changed as required. Thus the different light outputs can be compensated.

A carriage driven by a synchronous motor measures the light output using a light sensitive sensor. The measured values for the light output determined in this way are stored individually for each LED in order to calculate the correction values.

For the adjustment of the drive current, an L value is calculated for every LED chip, in order to adjust the light output together with the time correction factor (K value) to the nominal value. If during calculation of the correction values it is detected that the L value for one IC is below 6 (values 0 - 63 possible), an error is set.

Possible Error Causes

- Supply voltage (5V pin 27, 12V pin 10)
- Wiring
- PCB ZGS**
- LED array

76.19 LED Array Hardware Error: No LED Position Indicators

76.19 LED ARRAY HARDWARE ERROR

76.19 NO LED LIGHTS FOR POSIT. INDI.

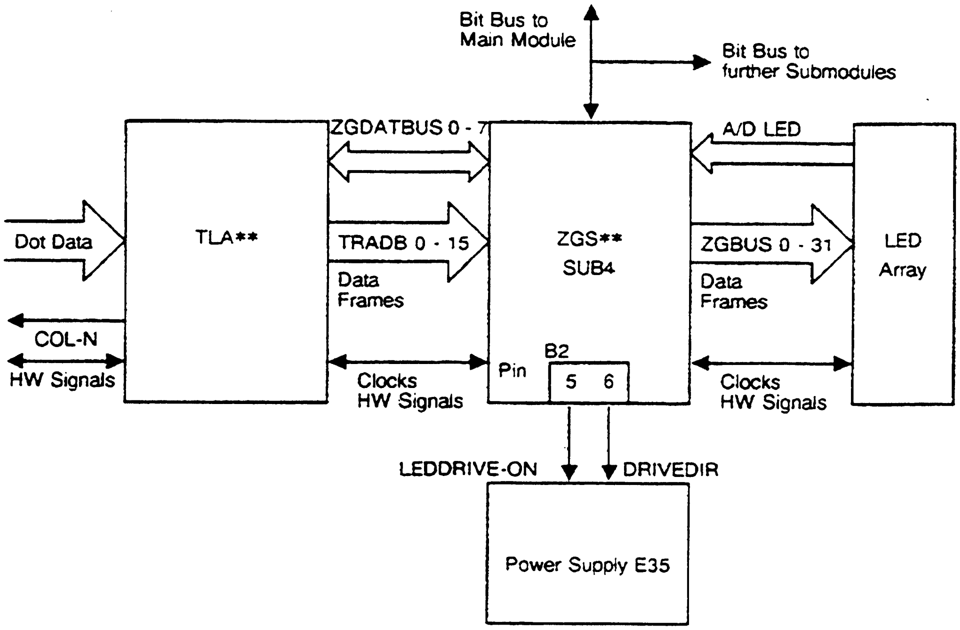

Bit Bus to
Main Module
Bit Bus to
further Submodules
ZGDATBUS 0 - 7
A/D LED
Dot Data
TLA**
TRADB 0 - 15
Data
Frames
ZGS**
SUB4
ZGBUS 0 - 31
Data
Frames
LED
Array
COL-N
HW Signals
Clocks
HW Signals
Pin
B2
5 6
Clocks
HW Signals
LEDDRIVE-ON
DRIVEDIR
Power Supply E35

Figure 3-109. 76.19 LED Array Hardware Error: No LED Position Indicators

Error Byte: 24/80

No LEDs/First Two ICs Light for Carriage Positioning

After manufacturing, the diodes on the LED array have different light outputs, which may become visible in the printout. It is possible to change the light-emitting period and the control current of the IC as required. Thus the different light outputs can be compensated.

A carriage driven by a synchronous motor measures the light output using a light-sensitive sensor. A running light is generated on the first two ICs in order to position the carriage. If the carriage detects no LED on the two ICs, an error message is set.

Possible Error Causes

- Supply and driver voltage (5V/3.14V)
- Check wiring of LED array
- LED array dirty
- Position is not reached, sensor touches foreign body (for example, toner)
- Reflection of light in silicon layer
- No VI/LED (approximately 1.2V, B1 PRINT)
- PCB ZGS**
- LED array

76.1A LED Array Hardware Error: Fatal Error of LED Array

76.1A	LED ARRAY HARDWARE ERROR

76.1A FATAL ERROR OF LED ARRAY

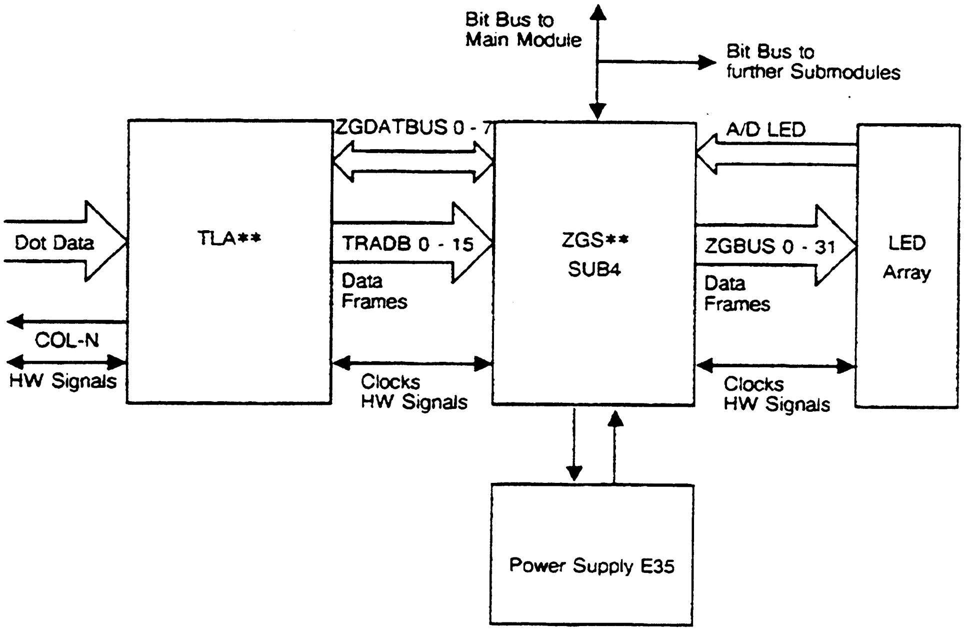

Bit Bus to
Main Module
Bit Bus to
further Submodules
ZGDATBUS 0 - 7
A/D LED
Dot Data
TLA**
TRADB 0 - 15
Data
Frames
ZGS**
SUB4
ZGBUS 0 - 31
Data
Frames
LED
Array
COL-N
HW Signals
Clocks
HW Signals
Clocks
HW Signals
Power Supply E35

Figure 3-110. 76.1A LED Array Hardware Error: Fatal Error of LED Array

Error Byte: 25/40

LED Array Too Light/Dark/Unstable During Alignment

After manufacturing, the diodes on the LED array have different light outputs, which may become visible in the printout. It is possible to change the light-emitting period and the control current of the IC as required. Thus the different light outputs can be compensated.

A carriage driven by a synchronous motor measures the light output using a light-sensitive sensor. If an alignment according to the mathematical model does not lead to the required result, an alignment is automatically attempted once more. If the alignment procedure detects that the LED array is too light or dark for alignment or if the required measurement values cannot be attained anyway, an error is set.

Possible Error Causes

- LED array dirty
- Wiring, busbar
- Supply and driver voltage (5V/3.14V)
- LED array

78.00 Power Supply Error LED Array: Power Supply Failed

78.00 POWER SUPPLY ERROR LED ARRAY

78.00 POWER SUPPLY FAILED

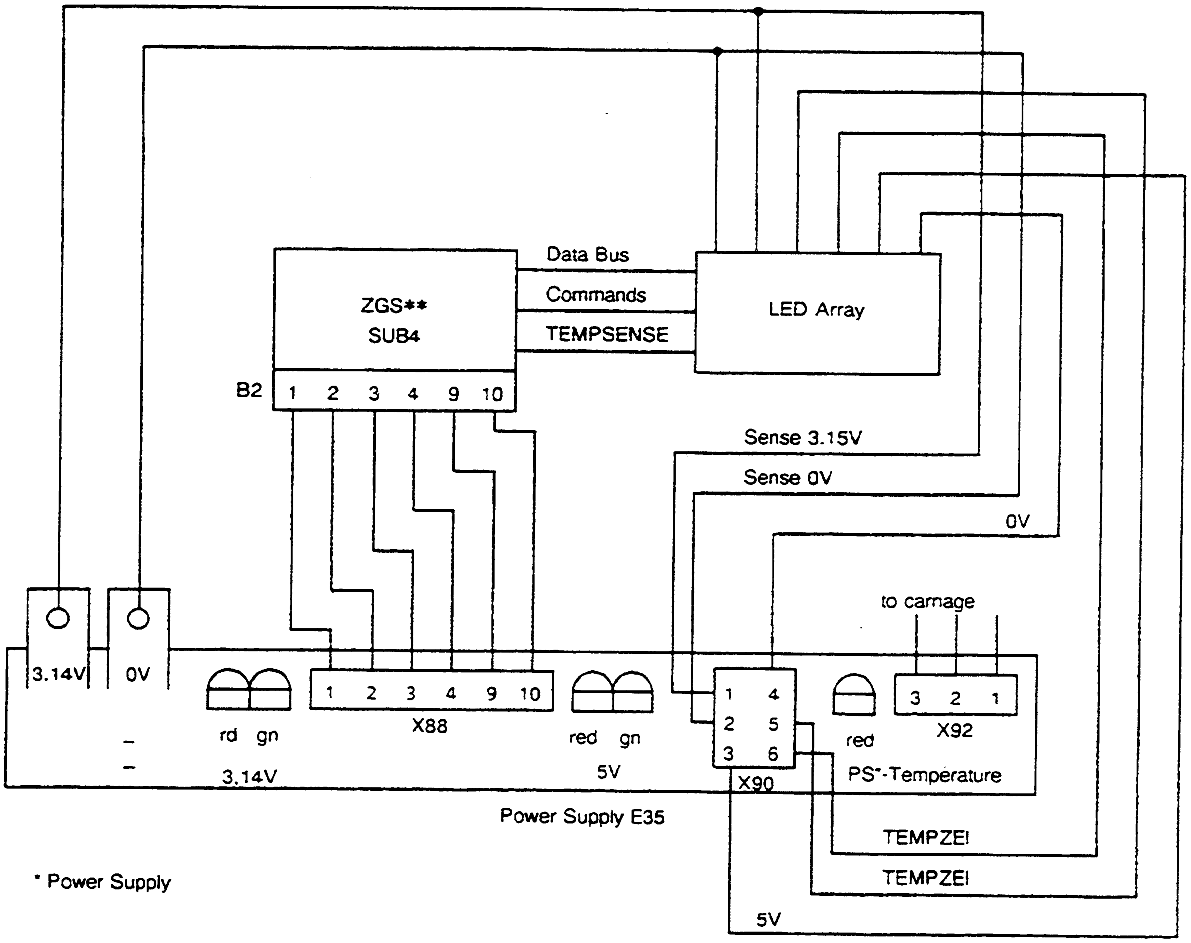

Data Bus
Commands
TEMPSENSE
ZGS**
SUB4
LED Array
B2
1 2 3 4 9 10
Sense 3.15V
Sense 0V
0V
to carriage
3.14V
0V
rd gn
3.14V
1 2 3 4 9 10
X88
red gn
5V
1 4
2 5
3 6
X90
red
3 2 1
X92
PS*-Temperature
Power Supply E35
TEMPZEI
TEMPZEI
5V
* Power Supply

Figure 3-111. 78.00 Power Supply Error LED Array: Power Supply Failed

Error Byte: 25/10

Character Generator Power Supply Failed

The character generator power supply is monitored thermically during operation. If this thermo-monitoring responds, the power pack is switched off. The power supply errors (sensor 3.15V, short circuit internal or on LED array) then lead to the signals PFRLOGIC or PFRTREIBER, which also result in a power-off of the power pack. If the values fall below the low voltage limit, the red LEDs light up. If the overvoltage is exceeded, the green LEDs do not light any more; and the red LED flashes after the corresponding voltage is switched off. If one of the monitored limits is exceeded in a range of 5V, the 3.15V are stopped.

Possible Error Causes

- Wiring (interrupt, short circuit, ...), busbar
- Temperature error (X90 at power supply E35 pin 5/6)
- Power supply internal temperature error (LED on power supply)

78.02/78.03 Power Supply Error LED Array: Does Not Switch On/Off

78.02 POWER SUPPLY ERROR LED ARRAY
78.03 POWER SUPPLY ERROR LED ARRAY

78.02 LOGIC POWER DOESN'T SWITCH ON
78.03 LOGIC POWER DOESN'T SWITCH OFF

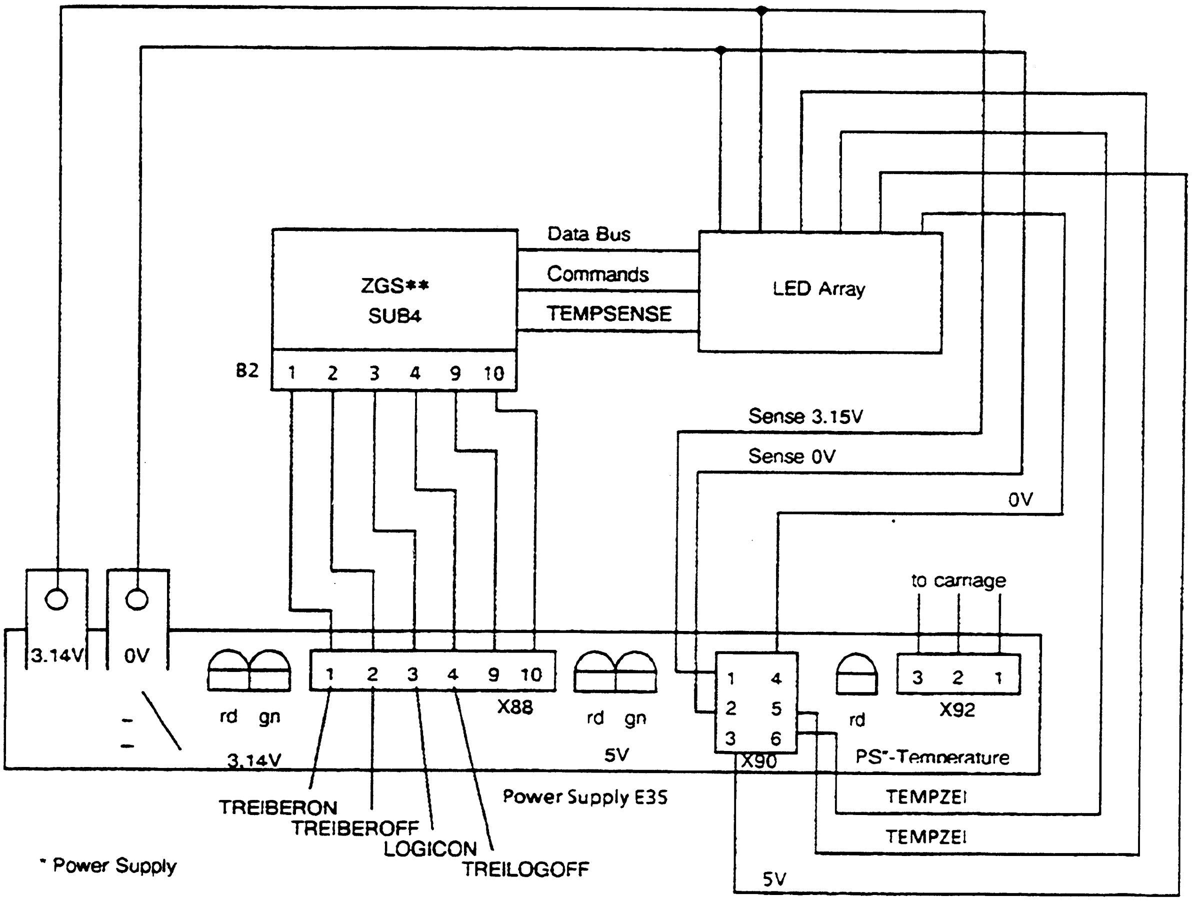

Data Bus
Commands
TEMPSENSE
ZGS**
SUB4
LED Array
B2
1 2 3 4 9 10
Sense 3.15V
Sense 0V
0V
to carriage
3.14V
0V
rd gn
3.14V
1 2 3 4 9 10
X88
rd gn
5V
1 4
2 5
3 6
X90
rd
3 2 1
X92
PS*-Temperature
TEMPZEI
TEMPZEI
5V
Power Supply E35
TREIBERON
TREIBEROFF
LOGICON
TREILOGOFF
* Power Supply

Figure 3-112. 78.02/78.03 Power Supply Error LED Array: Does Not Switch On/Off

Error Byte: 24/02
Error Byte: 24/04

PCB ZGS** switches the character generator power supply E35 on and off. After power-on (power-on, K10), 220V are supplied to the power supply input; at this time, the red monitoring LEDs for 3.14V and 5V must light up. After a few seconds, signal LOGICON switches on the 5V voltage; the green monitoring LED lights up. The 5V voltage supply of the character generator is switched on and off in the preparation phase for positioning the carriage.

During run-up of the printer, the 5V voltage supply is switched on again; then it is only switched off in case of a hard error or power off from the operator panel. The driver voltage is switched on at print start (signal TREIBERON) and is switched off at every print stop with signal TREIBEROFF (see red and green monitoring LED). In case of an interrupt of the 3.15V sensor line, power-on of the driver voltage is not possible.

Possible Error Causes

- Wiring (interrupt, short circuit, ...)
- Temperature error (X90 at power supply E35 pin 5/6)

78.04/78.05 Power Supply Error LED Array: Does Not Switch On/Off

78.04 POWER SUPPLY ERROR LED ARRAY
78.05 POWER SUPPLY ERROR LED ARRAY

78.04 DRIVER POWER DOESN'T SWITCH ON
78.05 DRIVER POWER DOESN'T SWITCH OFF

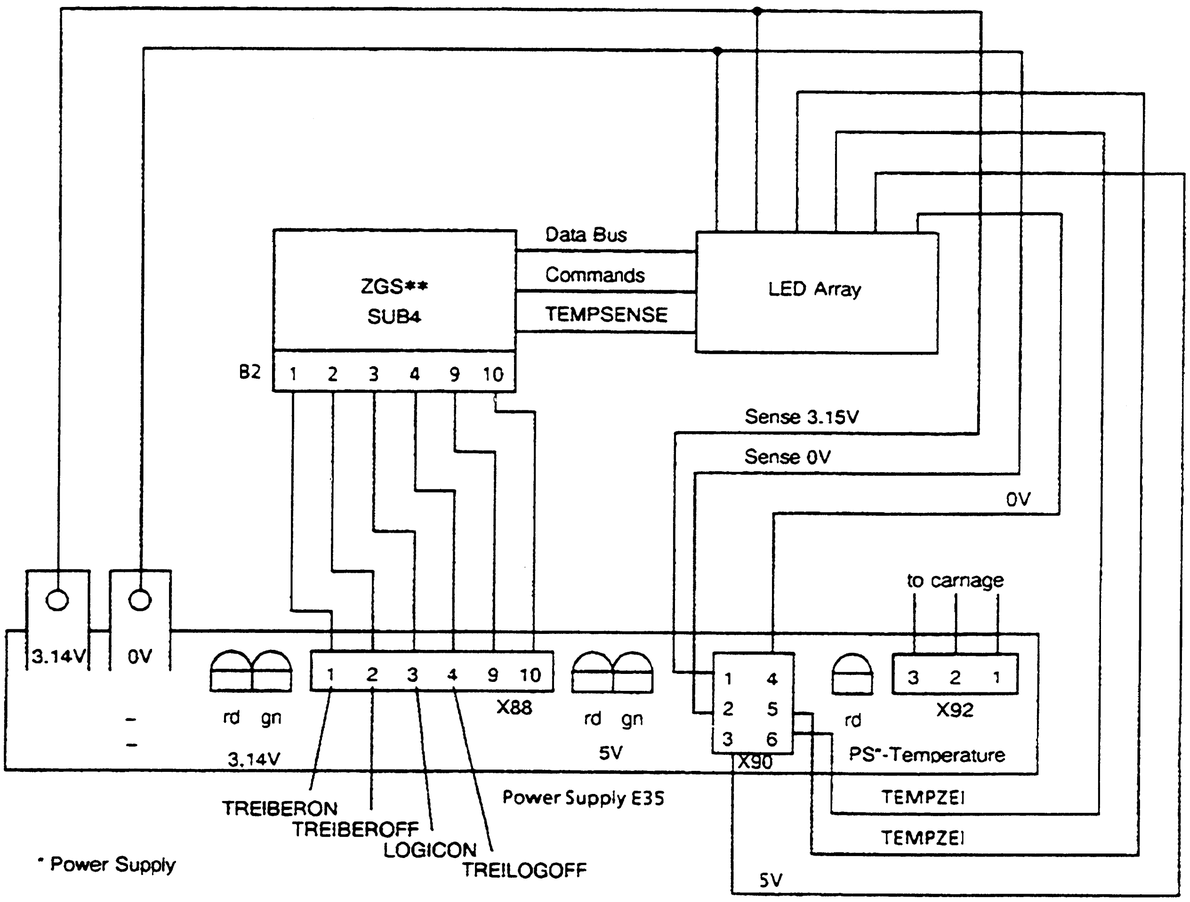

Data Bus
Commands
TEMPSENSE
ZGS**
SUB4
LED Array
B2
1 2 3 4 9 10
Sense 3.15V
Sense 0V
0V
to carriage
3.14V
0V
rd gn
3.14V
1 2 3 4 9 10
X88
rd gn
5V
1 4
2 5
3 6
X90
rd
3 2 1
X92
PS*-Temperature
TREIBERON
TREIBEROFF
LOGICON
TREILOGOFF
Power Supply E35
TEMPZEI
TEMPZEI
5V
* Power Supply

Figure 3-113. 78.04/78.05 Power Supply Error LED Array: Does Not Switch On/Off

Error Byte: 24/08
Error Byte: 24/10

PCB ZGS** switches the character generator power supply E35 on and off. After power-on (power-on, K10), 220V are supplied to the power supply input; at this time, the red monitoring LEDs for 3.14V and 5V must light up. After a few seconds, signal LOGICON switches on the 5V voltage; the green monitoring LED lights up. The 5V voltage supply of the character generator is switched on and off in the preparation phase for positioning the carriage.

During run-up of the printer, the 5V voltage supply is switched on again; then it is only switched off in case of a hard error or power off from the operator panel. The driver voltage is switched on at print start (signal TREIBERON) and is switched off at every print stop with signal TREIBEROFF (see red and green monitoring LED). In case of an interrupt of the 3.15V sensor line, power-on of the driver voltage is not possible.

Possible Error Causes

- Wiring (interrupt, short circuit, ...)
- Temperature error (X90 at power supply E35 pin 5/6)

79.03 Data Error LED Array: No Stop Command From Master

79.03 DATA ERROR LED ARRAY

79.03 NO STOP COMMAND FROM MASTER

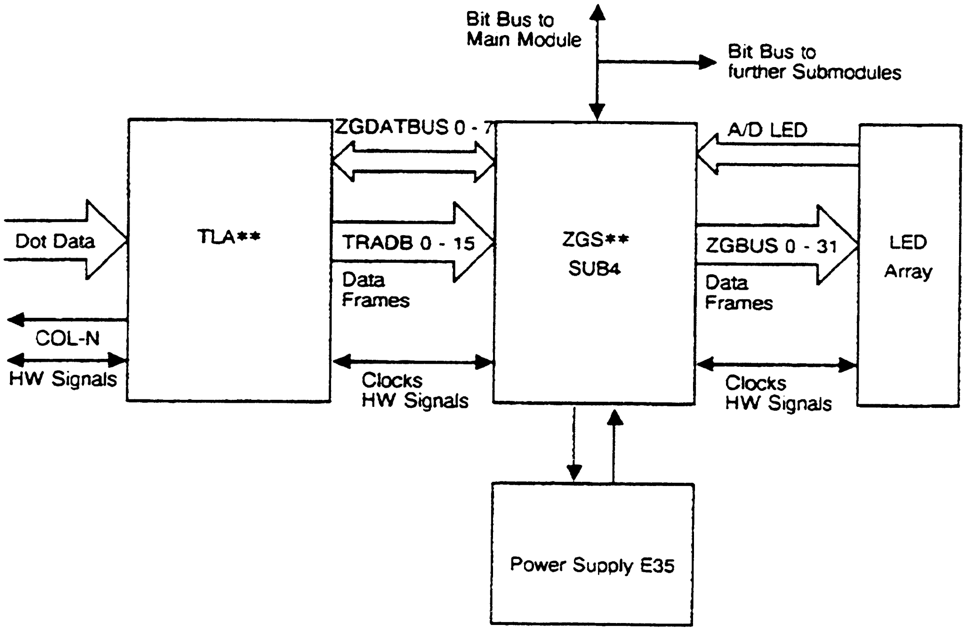

Bit Bus to Main Module
Bit Bus to further Submodules
ZGDATBUS 0 - 7
A/D LED
Dot Data
TLA**
TRADB 0 - 15
Data Frames
ZGS**
SUB4
ZGBUS 0 - 31
Data Frames
LED Array
COL-N
HW Signals
Clocks HW Signals
Clocks HW Signals
Power Supply E35

Figure 3-114. 79.03 Data Error LED Array: No Stop Command From Master

Error Byte: 26/40

STOPPRINT Not Sent after Soft Error

Main Module Does Not Send Message for Stop with Correct Forms Position After Soft Error

Submodule 4 and the main module are connected via a HSCC unit that controls the communication over the serial bus. Because of an HSCC interrupt, the microP 80535 reads the data parallel into/out of the unit. The communication with the main module follows the SDLC protocol. The information for the process control is contained in the frames transferred individually to the submodules. With the various phases of the process control the modules are set into the status required in each case (for example, power-on, preparation, stand by, and so forth). If the command STOPPRINT is not sent by the main module within 5 seconds after an error has been transferred by a submodule, an error is set.

Possible Error Causes

- Serial bus connection to main module
- PCB ZGS**

79.05 Data Error LED Array: Datatransfer While Prohibited

79.05	DATA ERROR LED ARRAY

79.05 DATATRANSFER WHILE PROHIBITED

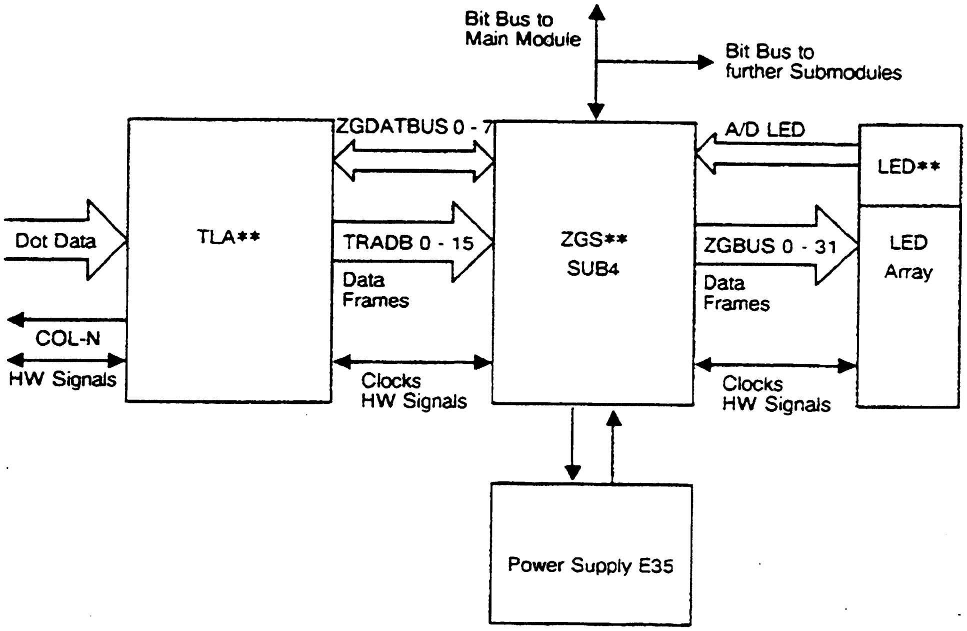

Bit Bus to Main Module
Bit Bus to further Submodules
ZGDATBUS 0 - 7
A/D LED
LED**
Dot Data
TLA**
TRADB 0 - 15
Data Frames
ZGS**
SUB4
ZGBUS 0 - 31
Data Frames
LED Array
COL-N
HW Signals
Clocks HW Signals
Clocks HW Signals
Power Supply E35

Figure 3-115. 79.05 Data Error LED Array: Datatransfer While Prohibited

Error Byte: 26/04

Data Transfer Errors

Data Transfer to Array Before Print Start; Data Transfer Does Not Stop at Print End

The print data, which is transferred to the LED array by the translator PCB, is only passed by a logic OR gate on the PCB ZGS**. This makes the direct print process from a PROM on the PCB ZGS** and the entering of the correction values into control ICs on the LED array possible.

If the data transfer is started shortly before print start or if the data transfer does not stop after print stop, an error is set. The transfer of measurement data from PCB LED** to PCB ZGS** is also monitored and in case of error, a message is displayed.

Possible Error Causes

- PCB ZGS**
- Wiring between PCB ZGS** and PCB LED**
- PCB LED**

79.07 Data Error LED Array: Phase Mismatch

79.07	DATA ERROR LED ARRAY

79.07 PHASE MISMATCH

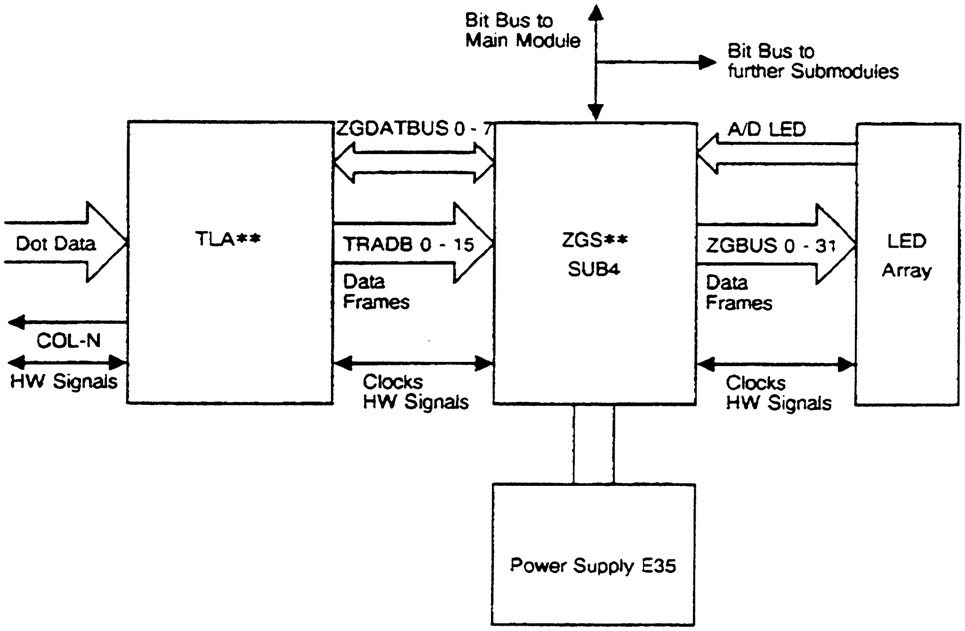

Bit Bus to Main Module
Bit Bus to further Submodules
ZGDATBUS 0 - 7
A/D LED
Dot Data
TLA**
TRADB 0 - 15
Data Frames
ZGS**
SUB4
ZGBUS 0 - 31
Data Frames
LED Array
COL-N
HW Signals
Clocks HW Signals
Clocks HW Signals
Power Supply E35

Figure 3-116. 79.07 Data Eror LED Array: Phase Mismatch

Error Byte: 26/80

Hard Error on Submodule Not Reset with PRINT INIT

Submodule 4 and the main module are connected via a HSCC unit that controls the communication over the serial bus. Due to an HSCC interrupt, the microP 80535 reads the data parallel into/out of the unit. The communication with the main module follows the SDLC protocol. The information for the process control is contained in the frames transferred individually to the submodules.

If an error is reported to the main module by PCB ZGS**, it has to be reset with command PRINT INIT by the main module. If no reset signal is sent after the error message and if a new START PRINT command has been sent, an error is set (hard error, restart only possible via standby).

Possible Error Causes

- Serial bus connection to main module
- PCB ZGS**
- Main module

7A.00 Reference Clock Error

7A.00	**REFERENCE CLOCK ERROR**

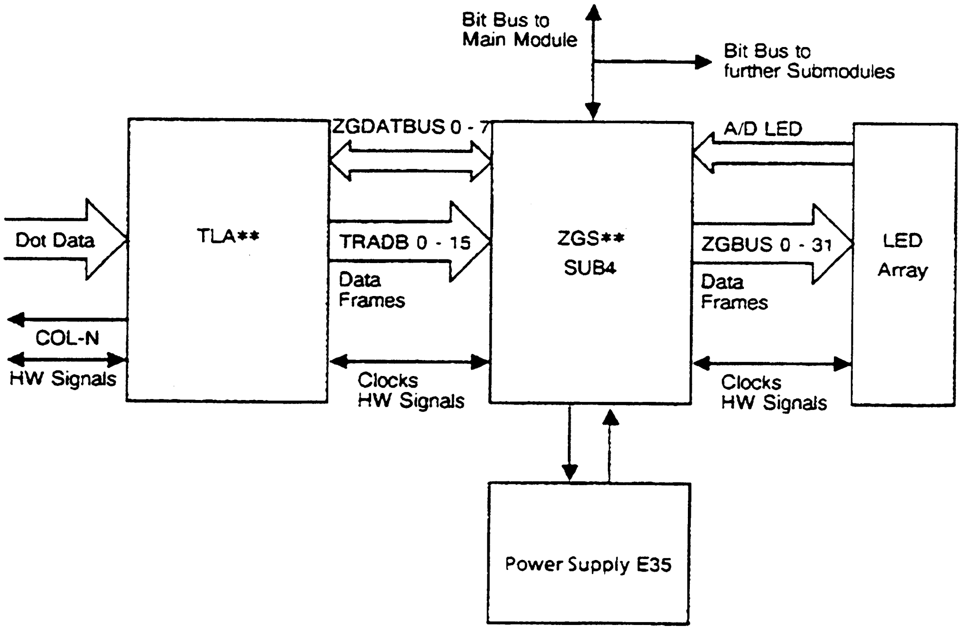

Bit Bus to Main Module
Bit Bus to further Submodules
ZGDATBUS 0 - 7
A/D LED
Dot Data
TLA**
TRADB 0 - 15
Data Frames
ZGS**
SUB4
ZGBUS 0 - 31
Data Frames
LED Array
COL-N
HW Signals
Clocks HW Signals
Clocks HW Signals
Power Supply E35

Figure 3-117. 7A.00 Reference Clock Error

Error Byte: 26/20

No Cycle Clock; Cycle Clock Too Fast

The cycle clock synchronizes the LED control with the print mechanics. This clock is originally generated at the rotation angle generator at the PCD. For the operation modes measurement of diodes and charging of correction values into the LED array, the cycle clock and also the data transfer clock on the PCB must be generated internally.

The frequency of the cycle clock has to be adapted to the respective LED array version, since corresponding to the print image resolution, a different number of microlines has to be generated in the same PCD rotation period. The correct frequency is adjusted automatically for 240 dpi and 300 dpi (depending on the NV-RAM on PCB ZGS**). The cycle clock is monitored on PCB ZGS**; if a drastic deviation from the nominal frequency occurs (end of page) or if no clock at all is applied (begin of page), an error is set.

Possible Error Causes

- Check whether PRCLOCK arraves at PCB ZGS**
  (XC2 pin 3/4; oscilloscope 200 mV/cm; 1 microsecond/cm
- Supply voltage (5V pin 27, 12V pin 10)
- Wiring
- PCB ZGS** defective
- Controller PCB BUM** defective
- Connector PCB BUC** defective
- Power supply PCB BUP** defective
- Rotation angle generator at PCD
- Contact error at charge corotron connection
- Mixture heaps on developer rollers formed by slowing down the PC drum

7C.00 LED Array Temp Too High: Overtemp at Sensor 1, 2, or 3

7C.00 LED ARRAY TEMP TOO HIGH

7C.00 OVERTEMP AT SENSOR 1, 2 OR 3

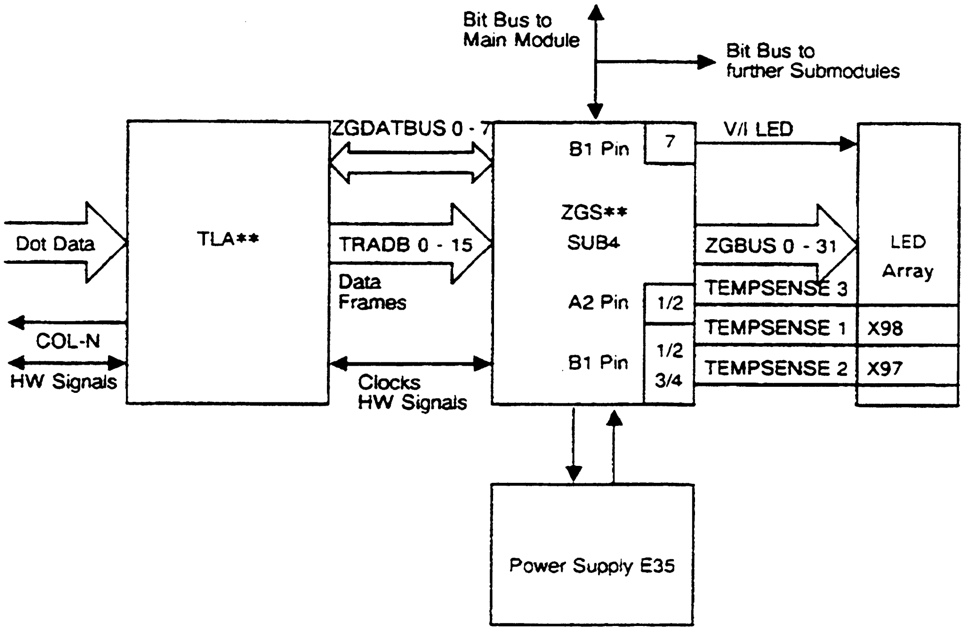

Bit Bus to Main Module
Bit Bus to further Submodules
ZGDATBUS 0 - 7
B1 Pin
7
V/I LED
Dot Data
TLA**
ZGS**
SUB4
TRADB 0 - 15
ZGBUS 0 - 31
LED Array
Data Frames
TEMPSENSE 3
A2 Pin
1/2
TEMPSENSE 1
X98
COL-N
B1 Pin
1/2
3/4
TEMPSENSE 2
X97
HW Signals
Clocks HW Signals
Power Supply E35

Figure 3-118. 7C.00 LED Array Temp Too High; Overtemp at Sensor 1, 2, or 3

Error Byte: 25/80

The waste heat occurring in LED array operation is usually led to an active cooling system. The respective temperature on the LED array is transferred to the PCB ZGS** by a temperature sensor; the maximum permissible module temperature has been set to 45°C.

Depending on the room climate, the state of the cooling system (filter mat, fan , . . .) and the print charge, the temperature limit of 45°C may be reached.

Possible Error Causes

- Wiring to character generator (at operating temperature)
- Resistance of sensors should be in the range of approx. 1.8 - 2.2 kΩ
- Cable of data or control bus mixed up or not connected
- LED array fan defective (6A.00)
- LED array fan filter dirty

7C.03 LED Array Temp Too High: LED Temperature Out of Range

7C.03	LED ARRAY TEMP TOO HIGH

7C.03 LED TEMPERATURE OUT OF RANGE

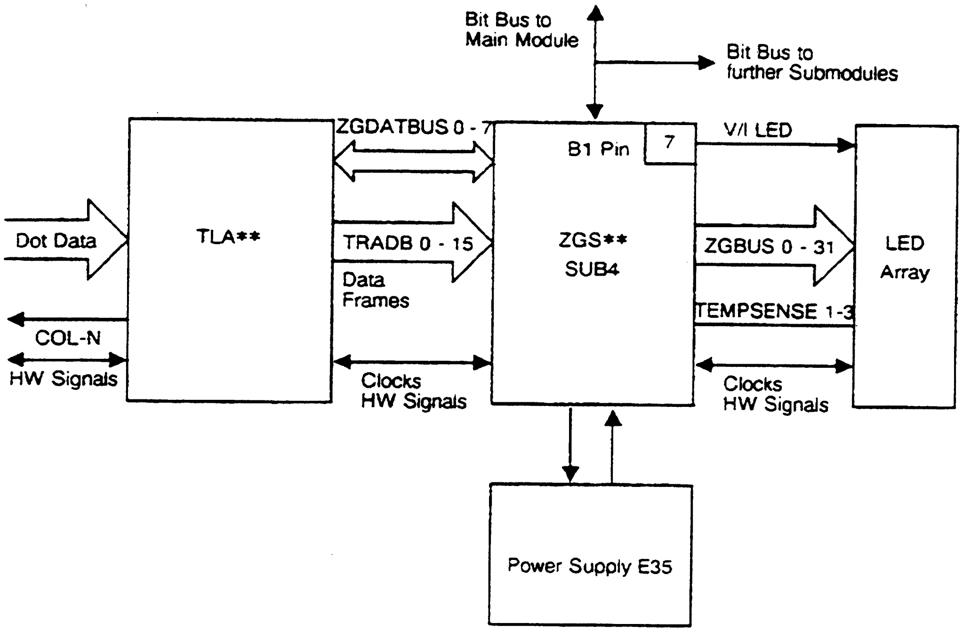

Bit Bus to
Main Module
Bit Bus to
further Submodules
ZGDATBUS 0 - 7
B1 Pin
7
V/I LED
Dot Data
TLA**
TRADB 0 - 15
Data
Frames
ZGS**
SUB4
ZGBUS 0 - 31
LED
Array
TEMPSENSE 1-3
COL-N
HW Signals
Clocks
HW Signals
Clocks
HW Signals
Power Supply E35

Figure 3-119. 7C.03 LED Array Temp Too High: LED Temperature Out of Range

Error Byte: 26/01

Temperature Adjustment

LED Temperature Controller for V/I-LED Temperature Adjustment has Maximum or Minimum

After manufacturing, the diodes on the LED array have different light outputs, which may become visible in the printout. The driver current is pre-adjusted for the whole LED array via the parameter V/I-LED. The light-emitting period of every diode (K value) and the control current of the IC on which the 64 LEDs are mounted (L value) can be changed as required. Thus the different light outputs can be compensated.

The light intensity decreases with increasing temperature. It is compensated by an automatic temperature-dependent readjustment of the control voltage V/I-LED.

Possible Error Causes

- Cooling system LED array
- Temperature sensors on LED array (1.8 - 2.2 kΩ)
- Wiring
- NV-RAM defective
- PCB ZGS**

7D.00 Stacker Error: Right Paddle Sensor Defect

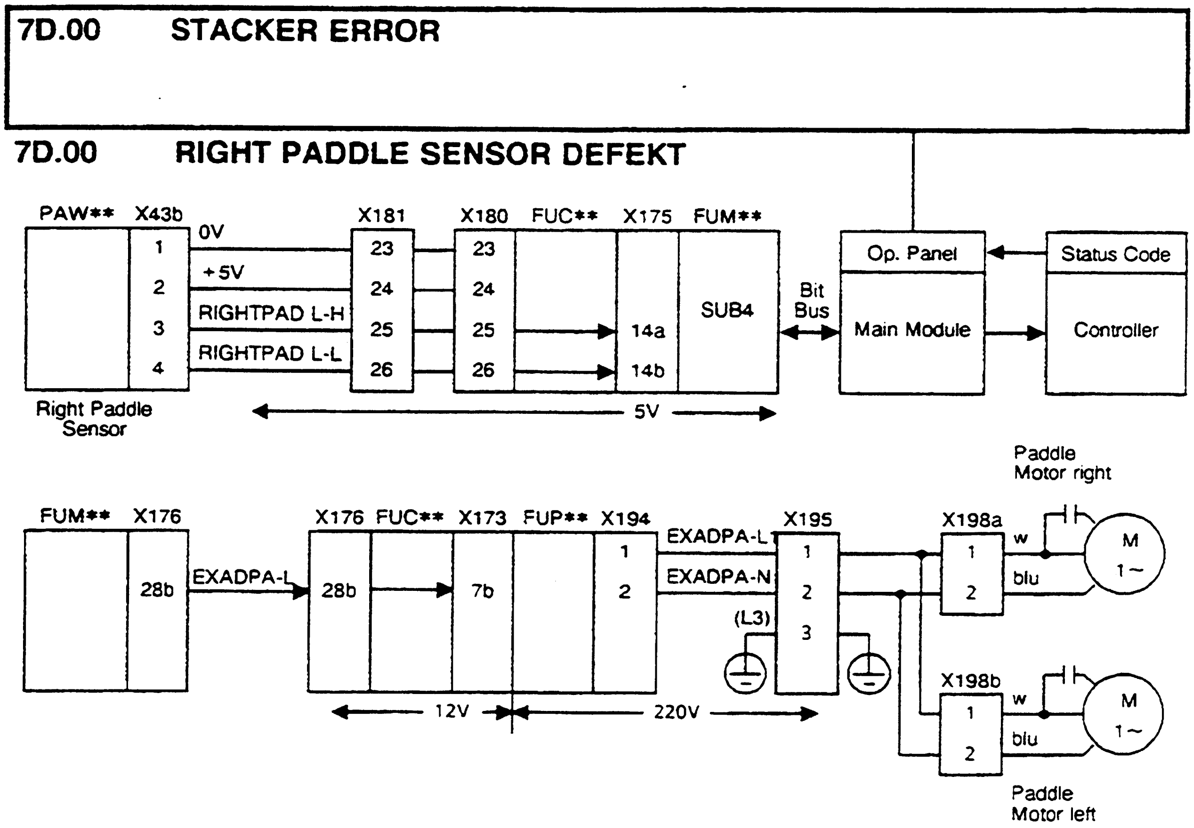

7D.00 STACKER ERROR
7D.00 RIGHT PADDLE SENSOR DEFEKT
PAW** X43b
X181
X180 FUC** X175 FUM**
0V
+5V
RIGHTPAD L-H
RIGHTPAD L-L
1
2
3
4
23
24
25
26
23
24
25
26
14a
14b
SUB4
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Right Paddle Sensor
5V
Paddle Motor right
FUM** X176
X176 FUC** X173 FUP** X194
X195
X198a
28b
EXADPA-L
28b
7b
1
2
EXADPA-L
EXADPA-N
(L3)
1
2
3
1
2
w
blu
M
1~
X198b
1
2
w
blu
M
1~
12V
220V
Paddle Motor left

Figure 3-120. 7D.00 Stacker Error: Right Paddle Sensor Defect

Error Byte: 16/01

Right Paddle Sensor Generates No Signals

The right paddle sensor (1 Hall switch and 4 magnets) generates alternating pulses as long as the right paddle shaft turns. During printer operation the paper stack becomes so high that the paddle shaft is blocked. The stacker upper part can be moved upward in small steps until the paddle shaft can rotate again. The error is set if the right paddle sensor generates no RIGHTPAD pulses after an xx-fold requirement of the run-up cycle (stacker upper part); the signal can be always high or always low.

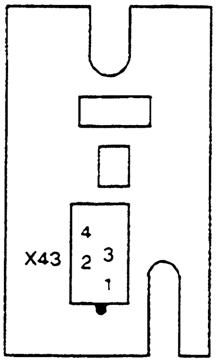
RIGHTPAD L-H	1.25V if magnet not in front of Hall switch
	2.50V if magnet in front of Hall switch
RIGHTPAD L-L	1.25V if magnet in front of Hall switch
	2.50V if magnet not in front of Hall switch

(can also be measured in stop state of printer)

Internal resistance of a paddle motor is approximately 12 kΩ.

Possible Error Causes

- Paddle shaft is mechanically blocked (transmission motor, shaft, and so forth)
- Stacker upper part does not move upward
- Sensor PCB PAW** defective
- Controller PCB FUM** defective
- Power supply PCB FUP** defective
- Connector PCB FUC** defective
- Line error (short circuit, line breakage, or contact error)
- Magnet disk defective (magnet lost or fixed incorrectly)
- Adjustment error (sensor PCB misadjusted)
- Paddle motor not triggered
- Paddle motor defective



7D.01 Stacker Error: Left Paddle Sensor Defect

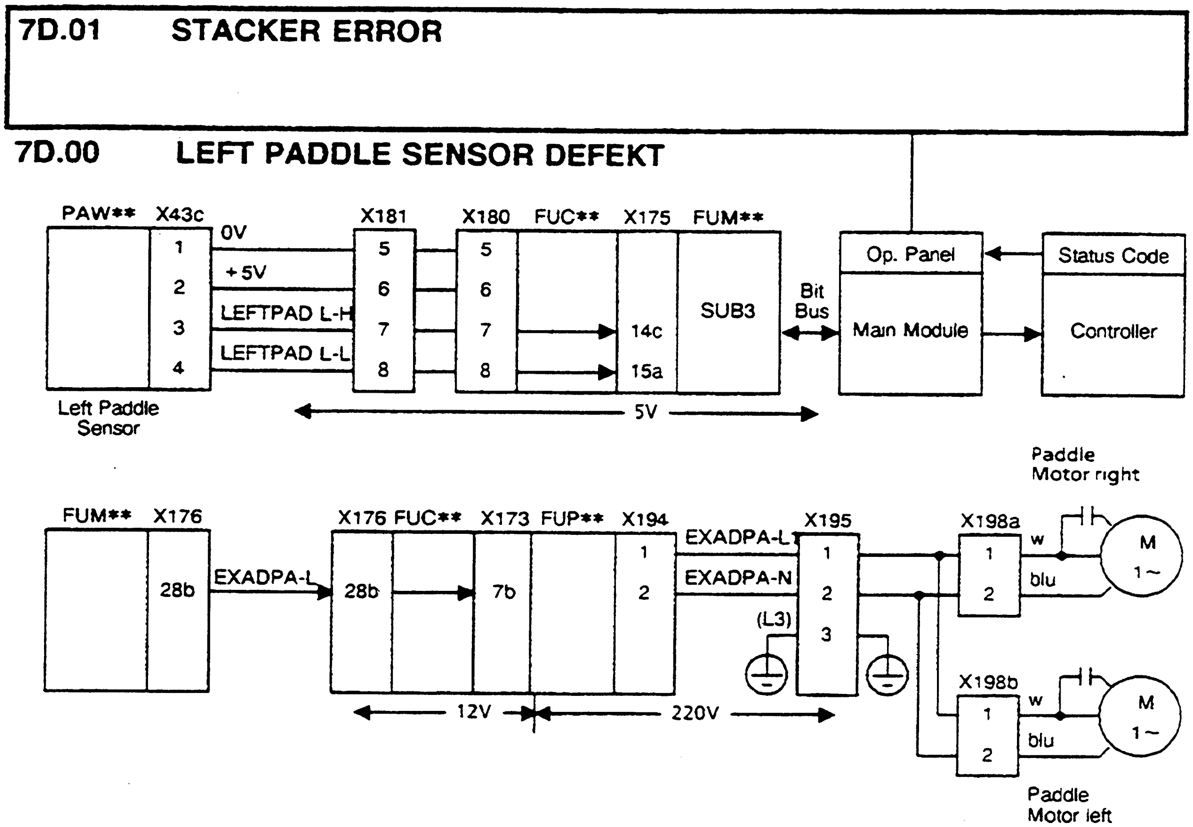

7D.01 STACKER ERROR
7D.00 LEFT PADDLE SENSOR DEFEKT
PAW** X43c
X181
X180 FUC** X175 FUM**
0V
+5V
LEFTPAD L-H
LEFTPAD L-L
14c
15a
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Left Paddle Sensor
5V
Paddle Motor right
FUM** X176
28b
EXADPA-L
X176 FUC** X173 FUP** X194
28b
7b
X195
EXADPA-L
EXADPA-N
(L3)
X198a
w
blu
M
1~
X198b
12V
220V
Paddle Motor left

Figure 3-121. 7D.01 Stacker Error: Left Paddle Sensor Defect

Error Byte: 16/02

Left Paddle Sensor Generates No Signals

The left paddle sensor (1 Hall switch and 4 magnets) generates alternating pulses as long as the left paddle shaft turns. During printer operation the paper stack becomes so high that the paddle shaft is blocked. The stacker upper part can be moved upward in small steps until the paddle shaft can rotate again. The error is set if the left paddle sensor generates no LEFTPAD pulses after an xx-fold requirement of the run-up cycle (stacker upper part); the signal can be always high or always low.

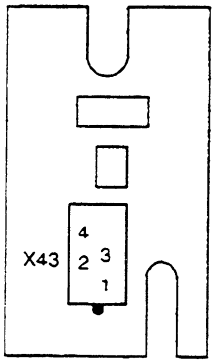
LEFTPAD L-H	1.25V if magnet is not before Hall switch
	2.50V if magnet is before Hall switch
LEFTPAD L-L	1.25V if magnet is before Hall switch
	2.50V if magnet is not before Hall switch

(can also be measured in stop state of printer)

Internal resistance of a paddle motor is approximately 12 kΩ.

Possible Error Causes

- Paddle shaft is mechanically blocked (transmission motor, shaft, and so forth)
- Stacker upper part does not move upward
- Sensor PCB PAW** defective
- Controller PCB FUM** defective
- Power supply PCB FUP** defective
- Connector PCB FUC** defective
- Line error (short circuit, line breakage, or contact error)
- Magnet disk defective (magnet lost or fixed incorrectly)
- Adjustment error (sensor PCB misadjusted)
- Paddle motor not triggered
- Paddle motor defective



7D.02 Stacker Error: Stacker Full Sensor Error

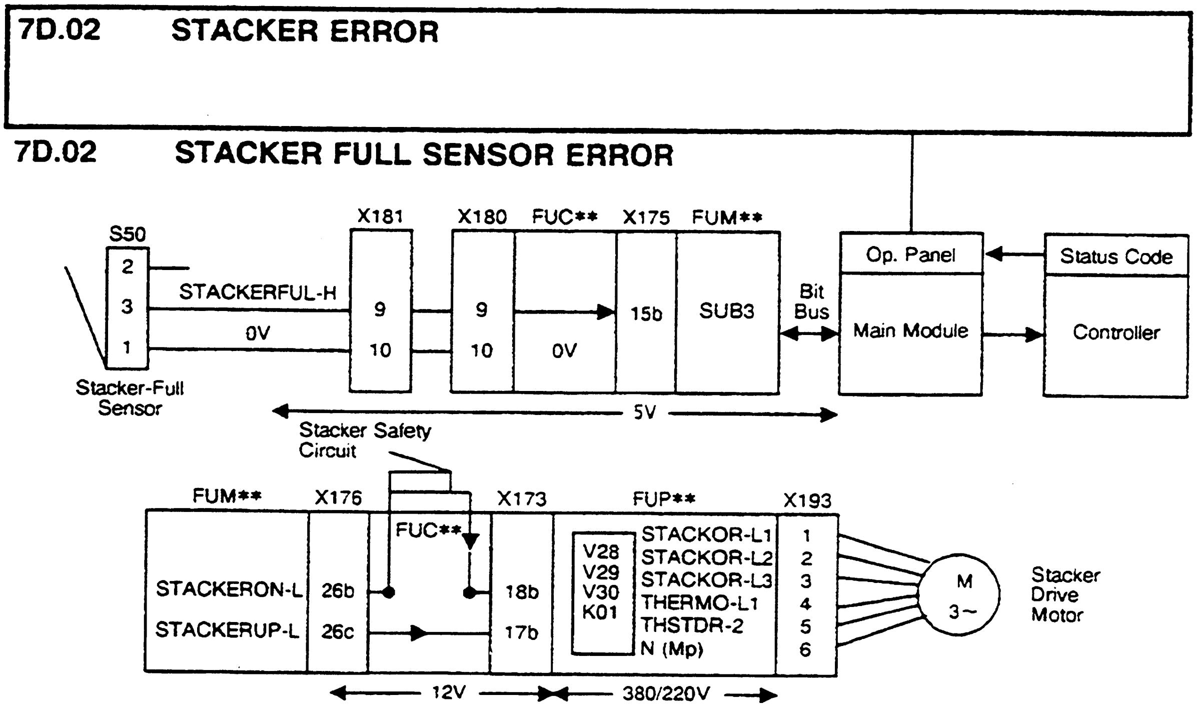

7D.02 STACKER ERROR
7D.02 STACKER FULL SENSOR ERROR
S50
2
3
1
Stacker-Full Sensor
STACKERFUL-H
0V
X181
9
10
X180
9
10
FUC**
0V
X175
15b
FUM**
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V
Stacker Safety Circuit
FUM**
X176
STACKERON-L
STACKERUP-L
26b
26c
FUC**
X173
18b
17b
FUP**
V28
V29
V30
K01
STACKOR-L1
STACKOR-L2
STACKOR-L3
THERMO-L1
THSTDR-2
N (Mp)
X193
1
2
3
4
5
6
M
3~
Stacker Drive Motor
12V
380/220V

Figure 3-122. 7D.02 Stacker Error: Stacker Full Sensor Error

Error Byte: 16/04

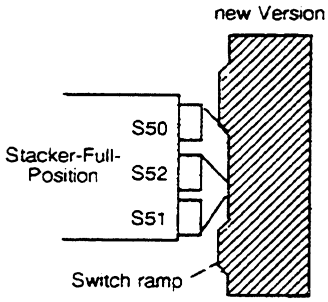
Function of Stacker Full Switch Not Guaranteed

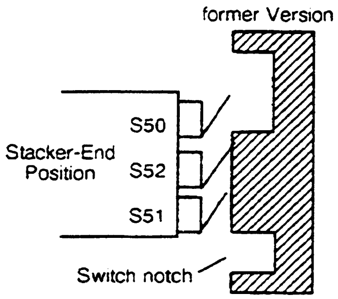
The stacker movements are monitored by 3 microswitches and 1 Hall sensor PCB. The lowest position is reached when the stacker low switch S51 is not actuated. The uppermost position is reached when stacker end switch S52 and stacker full switch S50 are not actuated. The stacker full position (maximum stacking height of paper) is reached if only stacker full switch S50 is not actuated. The stacker-pos-sensor converts the rotation of the stacker motor shaft into pulses and thus monitors the stacker positions over the whole distance. If one of the microswitches reports a position, this has to correspond to the values of the stacker-pos-sensor. The error message `7D.02 STACKER ERROR` is set if certain plausibility conditions are not fulfilled.

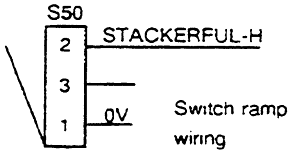
1. The stacker is triggered downward from the stacker full position. The stacker-pos-sensor also generates pulses, but the stacker full sensor still responds.
2. The stacker moves upward, and the stacker end position is reached without a previous detection of stacker full position.
3. Stacker-low and stacker-full respond at the same time and, according to the stacker-pos-sensor, the stacker is in stacker full position.

Possible Error Causes

- Microswitch defective, misadjusted, or connected incorrectly (relay 1-3)
- Line error (short circuit, line breakage, or contact error)
- Controller PCB FUM** defective, connector PCB FUC** defective
- PCB FUP** defective
- Stacker-pos-sensor defective or misadjusted


new Version
S50
Stacker-Full-Position
S52
S51
Switch ramp


former Version
S50
Stacker-End Position
S52
S51
Switch notch


S50
2
3
1
STACKERFUL-H
0V
Switch ramp wiring

7D.03 Stacker Error: Stacker End Sensor Error

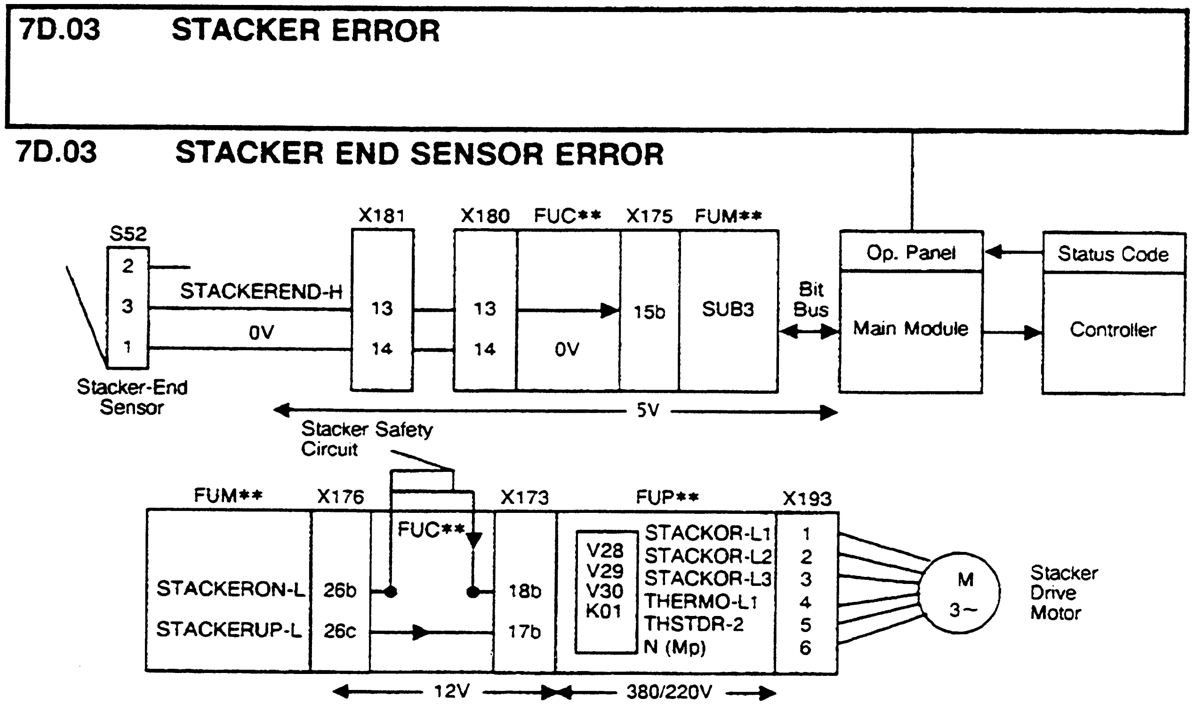

7D.03 STACKER ERROR
7D.03 STACKER END SENSOR ERROR
S52
2
3
1
Stacker-End Sensor
STACKEREND-H
0V
X181
13
14
X180
13
14
FUC**
0V
X175
15b
FUM**
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V
Stacker Safety Circuit
FUM**
X176
STACKERON-L
STACKERUP-L
26b
26c
FUC**
X173
18b
17b
FUP**
V28
V29
V30
K01
STACKOR-L1
STACKOR-L2
STACKOR-L3
THERMO-L1
THSTDR-2
N (Mp)
X193
1
2
3
4
5
6
M
3~
Stacker Drive Motor
12V
380/220V

Figure 3-123. 7D.03 Stacker Error: Stacker End Sensor Error

Error Byte: 16/08

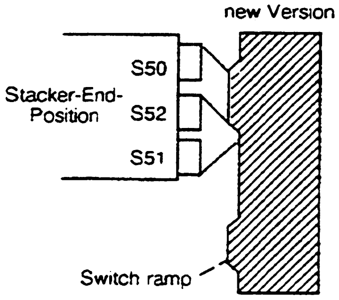
Function of Stacker End Switch Not Guaranteed

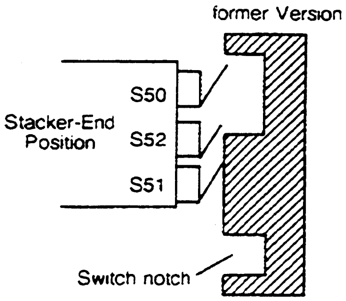
The stacker movements are monitored by 3 microswitches and 1 Hall sensor PCB. The lowest position is reached when the stacker low switch S51 is not actuated. The uppermost position is reached when stacker end switch S52 and stacker full switch S50 are not actuated. The stacker full position (maximum stacking height of paper) is reached if only stacker full switch S50 is not actuated. The stacker-pos-sensor converts the rotation of the stacker motor shaft into pulses and monitors thus the stacker positions over the whole distance. If one of the microswitches reports a position, this has to correspond to the values of the stacker-pos-sensor. The error message `7D.03 STACKER ERROR` is set if certain plausibility conditions are not fulfilled.

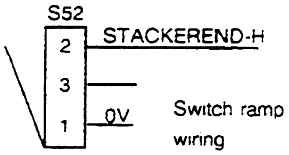
1. The stacker is triggered downwards from the stacker end position. The stacker-pos-sensor also generates pulses, but the stacker end sensor still responds.
2. The stacker moves upward and the stacker-pos-sensor also generates signals. After a maximum of 16 seconds, the stacker end position has not been detected, although according to the stacker-pos-sensor, the stacker is in the uppermost position.
3. Stacker-low and stacker-end respond at the same time and, according to the stacker-pos-sensor, the stacker is in stacker end position.

Possible Error Causes

- Stacker upper part blocks
- Microswitch defective, misadjusted, or connected incorrectly (relay 1-3)
- Line error (short circuit, line breakage, or contact error)
- Controller PCB FUM** defective, connector PCB FUC** defective
- PCB FUP** defective
- Stacker-pos-sensor defective or misadjusted


new Version
S50
Stacker-End-
Position
S52
S51
Switch ramp


former Version
S50
Stacker-End
Position
S52
S51
Switch notch


S52
2
3
1
STACKEREND-H
0V
Switch ramp
wiring

7D.04 Stacker Error: Stacker Low Sensor Error

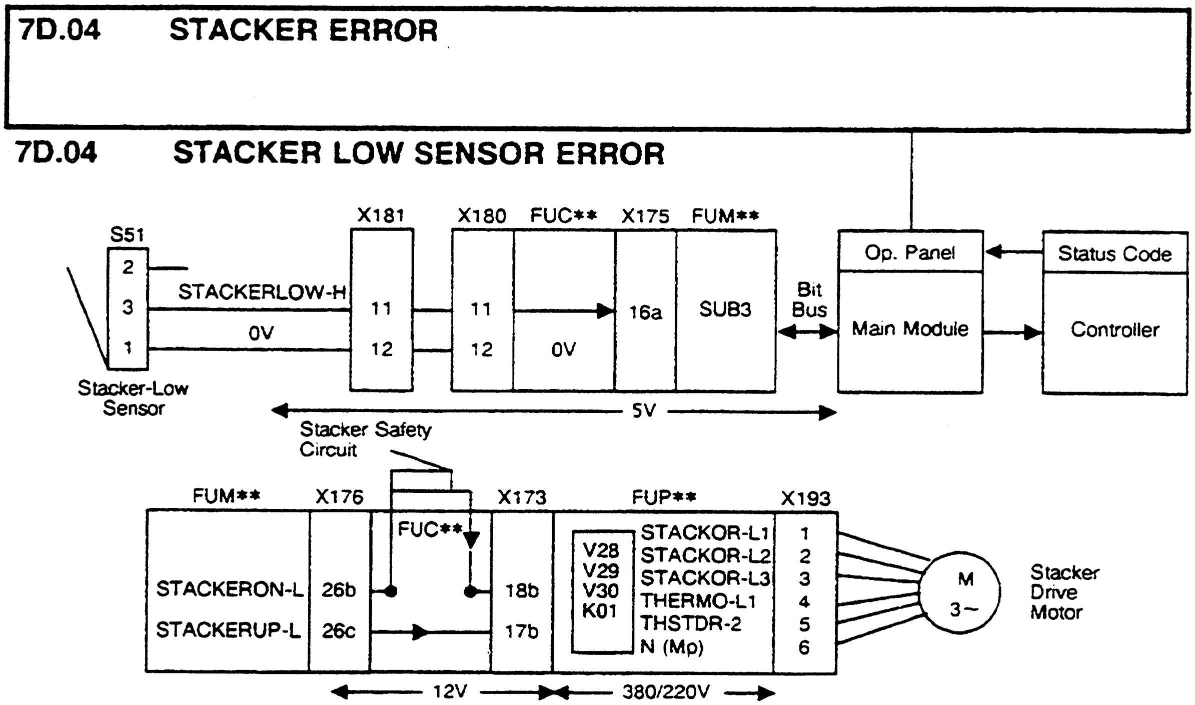

7D.04 STACKER ERROR
7D.04 STACKER LOW SENSOR ERROR
S51
2
3
1
Stacker-Low Sensor
STACKERLOW-H
0V
X181
11
12
X180
11
12
FUC**
0V
X175
16a
FUM**
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V
Stacker Safety Circuit
FUM**
X176
FUC**
X173
FUP**
X193
STACKERON-L
STACKERUP-L
26b
26c
18b
17b
V28
V29
V30
K01
STACKOR-L1
STACKOR-L2
STACKOR-L3
THERMO-L1
THSTDR-2
N (Mp)
1
2
3
4
5
6
M
3~
Stacker Drive Motor
12V
380/220V

Figure 3-124. 7D.04 Stacker Error: Stacker Low Sensor Error

Error Byte: 16/10

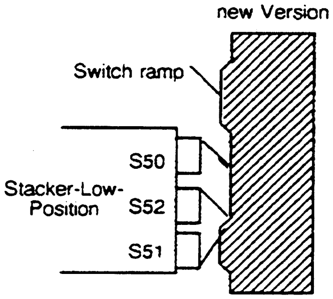
Function of Stacker Low Switch Not Guaranteed

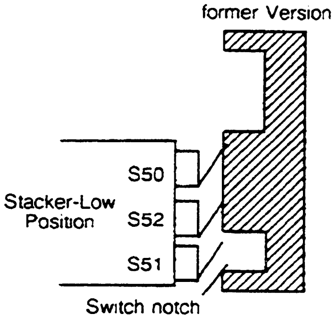
The stacker movements are monitored by 3 microswitches and 1 Hall sensor PCB. The lowest position is reached when the stacker low switch S51 is not actuated. The uppermost position is reached when stacker end switch S52 and stacker full switch S50 are not actuated. The stacker full position (maximum stacking height of paper) is reached if only stacker full switch S50 is not actuated. The stacker-pos-sensor converts the rotation of the stacker motor shaft into pulses and monitors the stacker positions over the whole distance. If one of the microswitches reports a position, this has to correspond to the values of the stacker-pos-sensor. The error message `7D.04 STACKER ERROR` is set if certain plausibility conditions are not fulfilled.

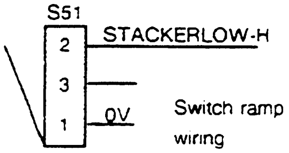
1. The stacker is triggered upwards from the stacker low position. The stacker-pos-sensor also generates pulses, but the stacker low sensor still responds.
2. The stacker moves downward and the stacker-pos-sensor also generates signals. After a maximum of 16 seconds, the stacker low position has not been detected, although according to the stacker-pos-sensor, the stacker is in the lowest position.
3. Stacker-low and stacker-end respond at the same time and, according to the stacker-pos-sensor, the stacker is in stacker low position.
4. The stacker-low, stacker-full, and stacker-end sensors all respond simultaneously.

Possible Error Causes

- Stacker upper part blocks
- Microswitch defective, misadjusted, or connected incorrectly (relay 1-3)
- Line error (short circuit, line breakage, or contact error)
- Controller PCB FUM** defective, connector PCB FUC** defective
- PCB FUP** defective
- Stacker-pos-sensor defective or misadjusted


new Version
Switch ramp
S50
Stacker-Low-Position
S52
S51


former Version
S50
Stacker-Low Position
S52
S51
Switch notch


S51
2
3
1
STACKERLOW-H
0V
Switch ramp wiring

7D.05 Stacker Error: Stacker Position Error

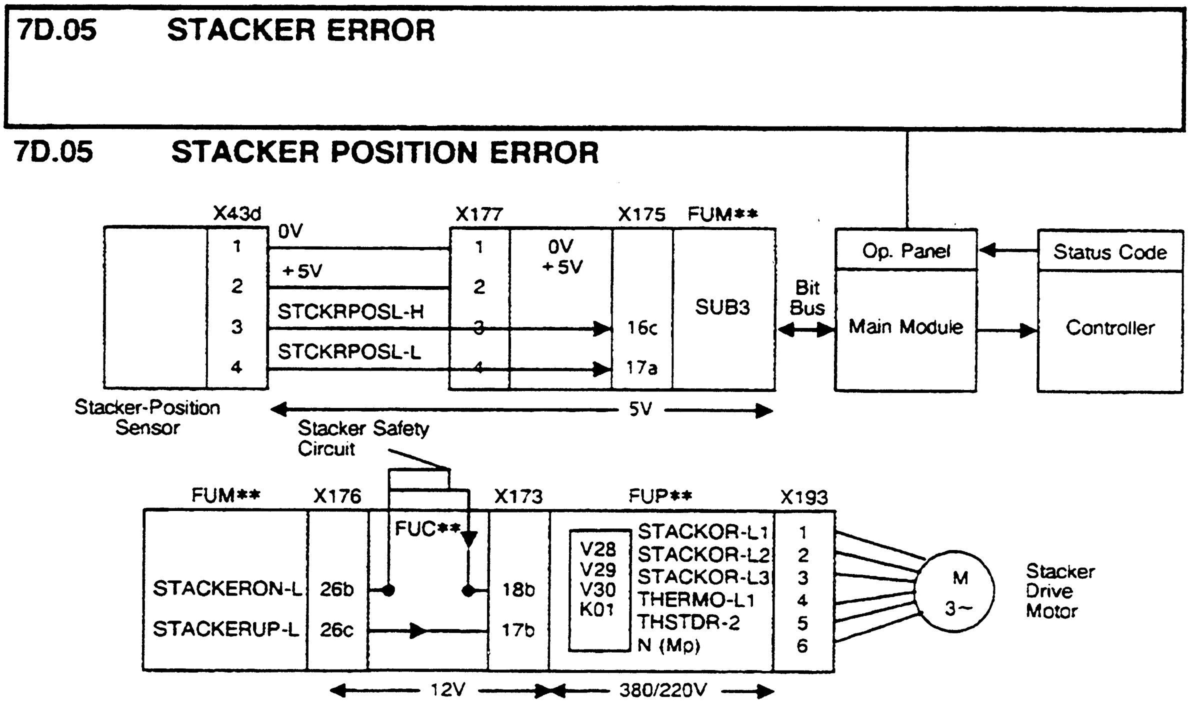

7D.05 STACKER ERROR
7D.05 STACKER POSITION ERROR
X43d
1
2
3
4
0V
+5V
STCKRPOSL-H
STCKRPOSL-L
X177
1
2
3
4
0V
+5V
X175
16c
17a
FUM**
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Stacker-Position Sensor
5V
Stacker Safety Circuit
FUM**
X176
FUC**
X173
FUP**
X193
STACKERON-L
STACKERUP-L
26b
26c
18b
17b
V28
V29
V30
K01
STACKOR-L1
STACKOR-L2
STACKOR-L3
THERMO-L1
THSTDR-2
N (Mp)
1
2
3
4
5
6
M
3~
Stacker Drive Motor
12V
380/220V

Figure 3-125. 7D.05 Stacker Error: Stacker Position Error

Error Byte: 16/20

Function of Stacker Position Sensor Not Guaranteed

The stacker movements are monitored by 3 microswitches and 1 Hall sensor PCB.

stacker end sensor = microswitch S52

stacker full sensor = microswitch S50

stacker low sensor = microswitch S51

stacker-pos sensor = 1 Hall switch, 4 magnets

The stacker-pos-sensor converts the rotation of the stacker motor shaft into pulses and thus monitors the stacker positions over the whole distance. The position of the lift in the stacker tray is adjusted according to the position of the stacker upper part. If one of the microswitches reports a position, this has to correspond to the values of the stacker-pos-sensor. The error message `7D.05 STACKER ERROR` is set if a certain position is reached.

The stacker is triggered and the stacker-pos sensor generates no pulses, and after 16 seconds no microswitch position is reached.

The error is reset with keys STACKER UP↑, STACKER DOWN↓, or CHECK RESET.

- Stacker safety bar activated
- Stacker upper part blocks

- Stacker-pos-sensor defective or misadjusted
- Line error (short circuit, line breakage, or contact error)
- Controller PCB FUM** defective
- Connector PCB FUC** defective
- Stacker safety circuit interrupted

7D.06 Stacker Error: Stacker Lift Pos Sensor Error

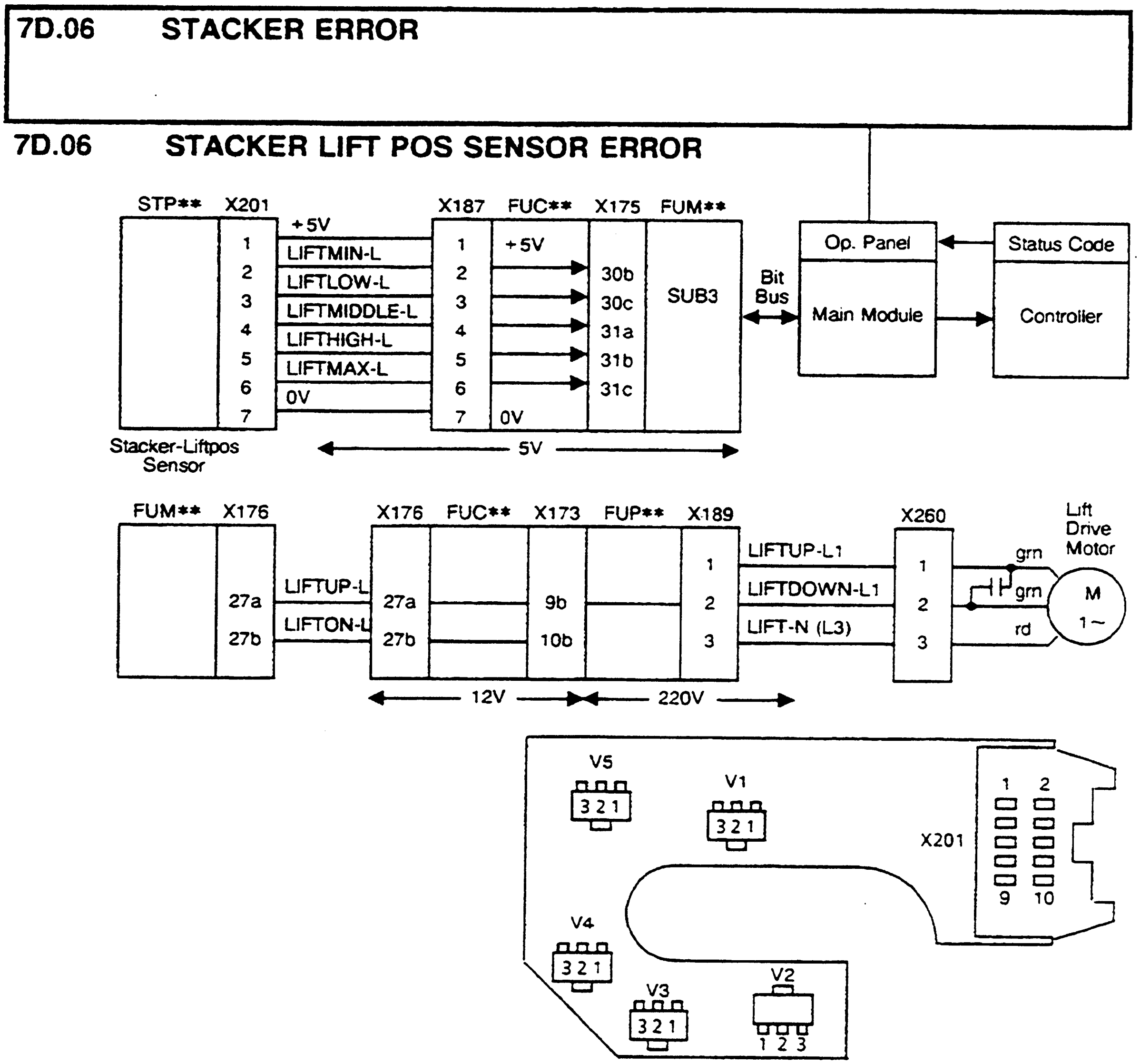

7D.06 STACKER ERROR
7D.06 STACKER LIFT POS SENSOR ERROR
STP** X201
X187 FUC** X175 FUM**
+5V
1 LIFTMIN-L 1 +5V
2 LIFTLOW-L 2 30b
3 LIFTMIDDLE-L 3 30c
4 LIFTHIGH-L 4 31a
5 LIFTMAX-L 5 31b
6 0V 6 31c
7 7 0V
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Stacker-Liftpos Sensor
5V
FUM** X176
X176 FUC** X173 FUP** X189
27a LIFTUP-L 27a 9b
27b LIFTON-L 27b 10b
1 LIFTUP-L1
2 LIFTDOWN-L1
3 LIFT-N (L3)
X260
1 2 3
grn
grn
rd
Lift Drive Motor
M 1~
12V
220V
V5 3 2 1
V1 3 2 1
V4 3 2 1
V3 3 2 1
V2 1 2 3
X201
1 2
9 10

Figure 3-126. 7D.06 Stacker Error: Stacker Lift Pos Sensor Error

Error Byte: 16/40

Stacker-liftpos Sensor Generates Incorrect or No Signals

The stacker-liftpos sensor reports the respective positions of the lift in the stacker tray:

LIFTMIN-L/LIFTLOW-L/LIFTMIDDLE-LLIFTHIGH-L/LIFTMAX-L

The respective position of the guide is adjusted corresponding to the position of the stacker upper part. The error message `7D.06 STACKER ERROR` occurs when:

1. the plausibility conditions are not fulfilled:
    - several stacker-liftpos signals are reported simultaneously
    - the wrong sequence of stacker-liftpos signals is detected (change of direction of rotation)
2. the time criteria are not fulfilled:
    - after the stacker lift motor has been triggered, a stacker-liftpos signal must be reported after xx ms.

Possible Error Causes

- Lift in stacker table blocks
- Stacker-liftpos sensor adjusted incorrectly (adjustment error)
- Stacker-liftpos sensor defective
- Line error (short circuit, line breakage, or contact error)
- Controller PCB FUM** defective
- Connector PCB FUC** defective
- Power supply PCB FUP** defective
- Lift motor defective

7D.07 Stacker Error: Paper Edge Sensor Defect

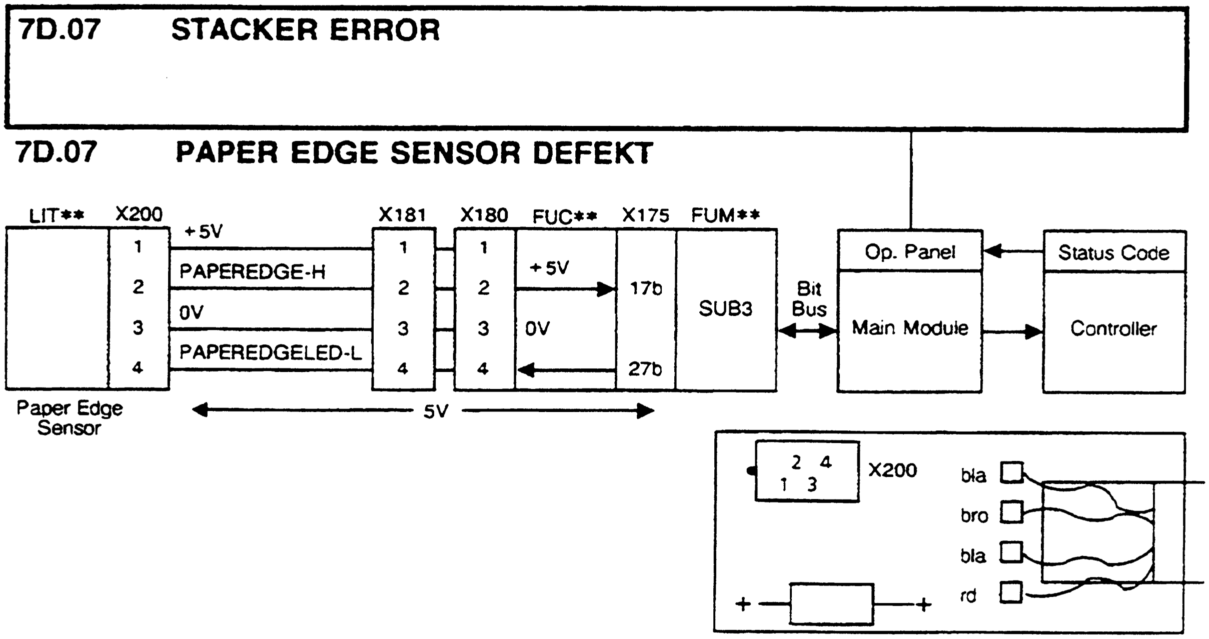

7D.07 STACKER ERROR
7D.07 PAPER EDGE SENSOR DEFEKT
LIT**
X200
1
2
3
4
+5V
PAPEREDGE-H
0V
PAPEREDGELED-L
X181
X180
FUC**
X175
FUM**
+5V
0V
17b
27b
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Paper Edge Sensor
5V
2 4
1 3
X200
bla
bro
bla
rd
+
+

Figure 3-127. 7D.07 Stacker Error: Paper Edge Sensor Defect

Error Byte: 16/80

Paper Edge Sensor Dirty or Defective

When paper is inserted, the paper edge sensor (light barrier) monitors the movement of paper into the stacker. Three seconds after the sensor has been activated, the Paper Insert phase is terminated. The sensor is adjusted and evaluated by means of a self-monitoring routine. With increased aging and soiling of the sensor, the LED current is automatically adjusted. The error message is generated when:

- the output voltage of the sensor does not respond to changes of the LED current
- more than 35 mA LED current is necessary to compensate the sensor/output voltage decreased to 3.5V
- the LED current cannot be increased further (above 40 mA) in order to compensate the sensor/output voltage decreased to 3.5V.

Possible Error Causes

- Sensor not within operation range (ageing, soiling, misadjustment)
- Sensor PCB defective
- Line error (short circuit, line breakage, or contact error)
- Controller PCB FUM** defective
- Connector PCB FUC** defective
- Sensor not aligned

7D.08 Stacker Error: Stacker Swing Position Error

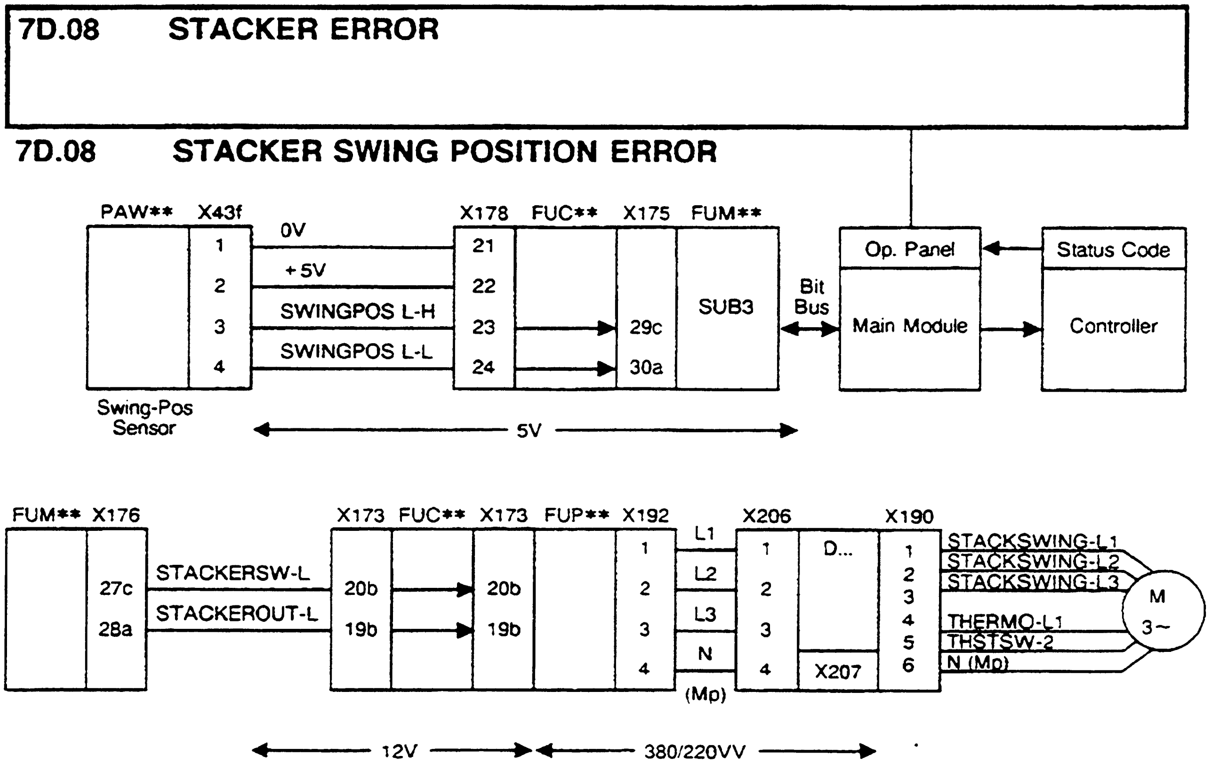

7D.08 STACKER ERROR
7D.08 STACKER SWING POSITION ERROR
PAW**
X43f
0V
+5V
SWINGPOS L-H
SWINGPOS L-L
1
2
3
4
Swing-Pos Sensor
X178
FUC**
X175
FUM**
21
22
23
24
29c
30a
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V
FUM**
X176
27c
28a
STACKERSW-L
STACKEROUT-L
X173
FUC**
X173
FUP**
X192
20b
19b
20b
19b
L1
L2
L3
N
(Mp)
X206
D...
X207
X190
STACKSWING-L1
STACKSWING-L2
STACKSWING-L3
THERMO-L1
THSTSW-2
N (Mp)
M
3~
12V
380/220VV

Figure 3-128. 7D.08 Stacker Error: Stacker Swing Position Error

Error Byte: 17/01

The stacker swing-pos sensor converts the rotation of the stacker swing motor into 40 pulses and thus detects the respective position of the slewable stacker bottom.

An error message is set when:

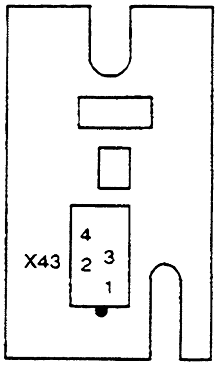
- no swing-pos signals are detected after the swing-pos motor has been triggered
- no end position is reached after xx ms.

Stacker swing-pos sensor = 1 Hall switch, 16 magnets
Stacker-inside sensor = microswitch S54
Stacker-outside sensor = microswitch S53

Possible Error Causes

- Swivel mechanics blocked
- Stacker swing-pos sensor misadjusted
- Stacker swing-pos sensor defective
- Stacker-outside sensor defective or misadjusted
- Stacker-inside sensor defective or misadjusted
- Line error (short circuit, line breakage, or contact error)

- Controller PCB FUM** defective
- Connector PCB FUC** defective
- Power supply PCB FUP** defective
- Stacker swing motor not triggered
- Stacker swing motor defective



7D.09 Stacker Error: Stacker In Position Not Found

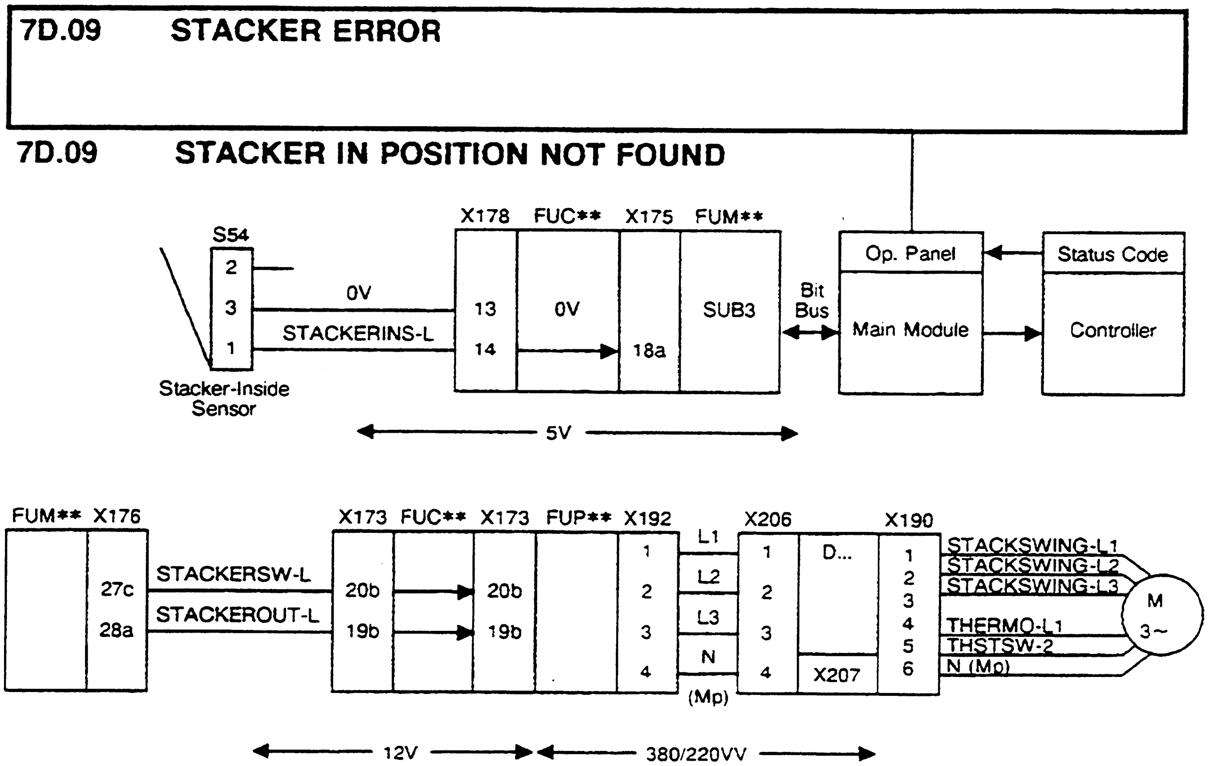

7D.09 STACKER ERROR
7D.09 STACKER IN POSITION NOT FOUND
S54
2
3
1
Stacker-Inside Sensor
0V
STACKERINS-L
X178
FUC**
X175
FUM**
13
14
0V
18a
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V
FUM** X176
27c
28a
STACKERSW-L
STACKEROUT-L
X173 FUC** X173 FUP** X192
20b
19b
20b
19b
1
2
3
4
L1
L2
L3
N
(Mp)
X206
1
2
3
4
D...
X207
X190
1
2
3
4
5
6
STACKSWING-L1
STACKSWING-L2
STACKSWING-L3
THERMO-L1
THSTSW-2
N (Mp)
M
3~
12V
380/220VV

Figure 3-129. 7D.09 Stacker Error: Stacker In Position Not Found

Error Byte: 17/02

The stacker-inside sensor monitors the basic position of the slewable stacker bottom (basic position reached = microswitch actuated). An error message is set when the stacker swing motor has been triggered and the stacker inside position is not reached after xx ms ; stacker swing-pos signals are, however, detected.

Stacker-inside sensor = microswitch S54 (relay)

Stacker swing-pos sensor = 1 Hall switch, 16 magnets

7D.0A Stacker Error: Stacker Out Position Not Found

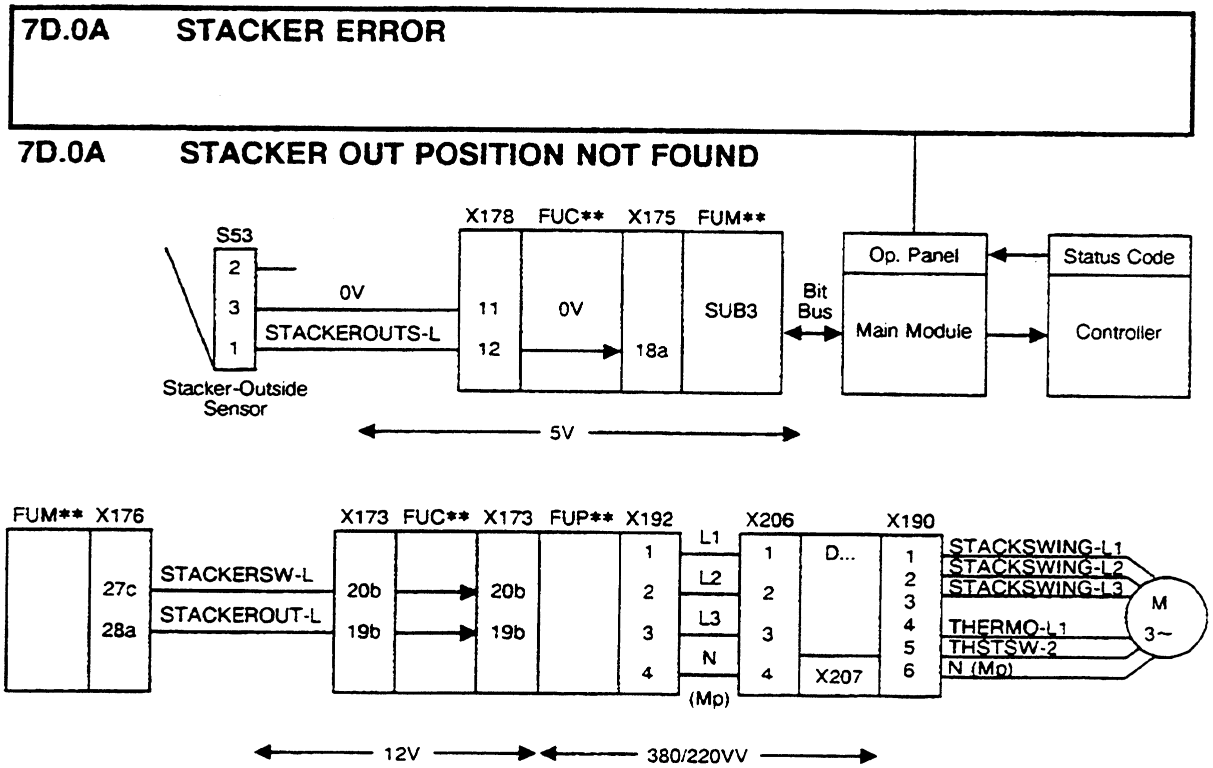

7D.0A STACKER ERROR
7D.0A STACKER OUT POSITION NOT FOUND
S53
2
3
1
0V
STACKEROUTS-L
Stacker-Outside Sensor
X178 FUC** X175 FUM**
11
12
0V
18a
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V
FUM** X176
27c
28a
STACKERSW-L
STACKEROUT-L
X173 FUC** X173 FUP** X192
20b
19b
20b
19b
1
2
3
4
L1
L2
L3
N
(Mp)
X206
1
2
3
4
D...
X207
X190
1
2
3
4
5
6
STACKSWING-L1
STACKSWING-L2
STACKSWING-L3
THERMO-L1
THSTSW-2
N (Mp)
M
3~
12V
380/220VV

Figure 3-130. 7D.0A Stacker Error: Stacker Out Position Not Found

Error Byte: 17/04

The stacker-outside sensor monitors the basic position of the slewable stacker bottom (basic position reached = microswitch actuated). An error message is set when the stacker swing motor has been triggered and the stacker outside position is not reached after xx ms ; stacker swing-pos signals are, however, detected.

Stacker-outside sensor = microswitch S53 (relay)

Stacker swing-pos sensor = 1 Hall switch, 16 magnets

Possible Error Causes

- Microswitch misadjusted (adjustment error)
- Microswitch defective
- Microswitch connected incorrectly (relay 1 - 3)
- Line error (short circuit, line breakage, or contact error)
- Controller PCB FUM** defective
- Connector PCB FUC** defective

7D.0B Stacker Error: Stacker Position Sensor Error

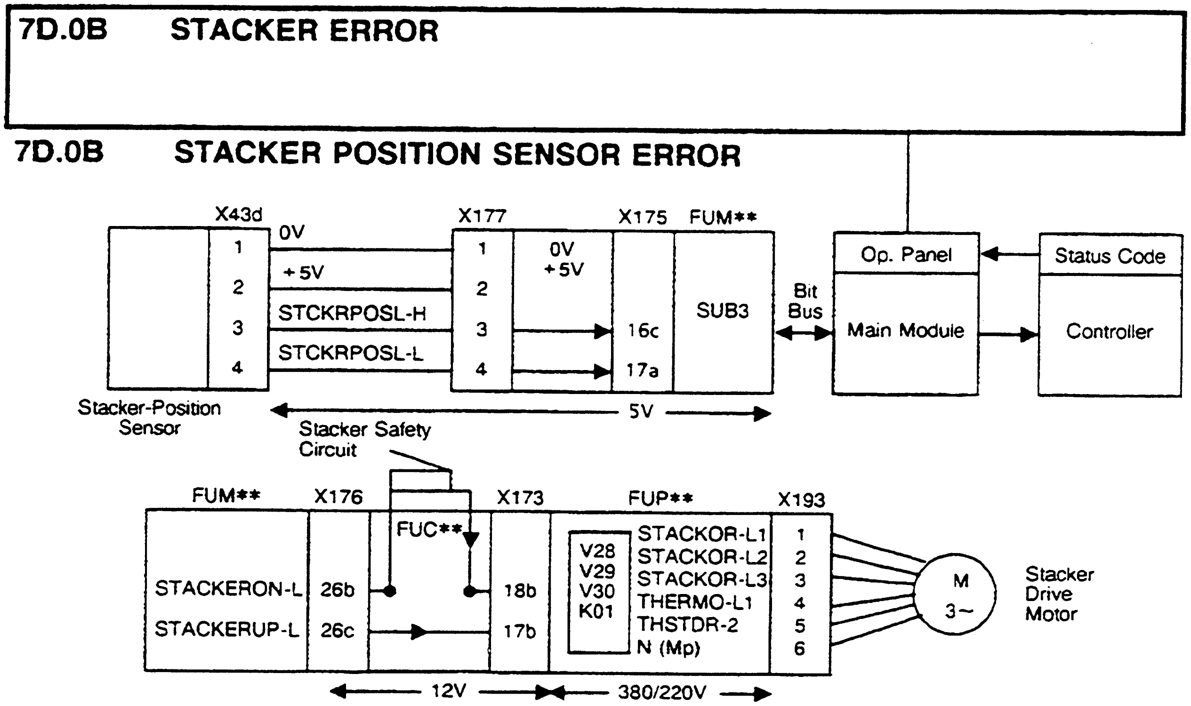

7D.0B STACKER ERROR
7D.0B STACKER POSITION SENSOR ERROR
X43d
X177
X175
FUM**
0V
+5V
STCKRPOSL-H
STCKRPOSL-L
1
2
3
4
16c
17a
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Stacker-Position Sensor
5V
Stacker Safety Circuit
FUM**
X176
X173
FUP**
X193
FUC**
STACKERON-L
STACKERUP-L
26b
26c
18b
17b
V28
V29
V30
K01
STACKOR-L1
STACKOR-L2
STACKOR-L3
THERMO-L1
THSTDR-2
N (Mp)
5
6
M
3~
Stacker Drive Motor
12V
380/220V

Figure 3-131. 7D.0B Stacker Error: Stacker Position Sensor Error

Error Byte: 21/20

Stacker Position Sensor Defective or Not Connected

The stacker movements are monitored by 3 microswitches and 1 Hall sensor PCB.

stacker end sensor = microswitch S52

stacker full sensor = microswitch S50

stacker low sensor = microswitch S51

stacker-pos sensor = 1 Hall switch, 4 magnets

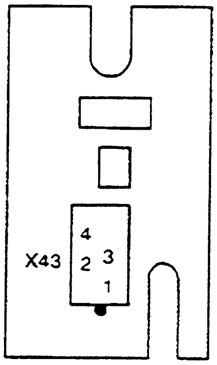
The stacker-pos sensor converts the rotation of the stacker motor shaft into pulses and thus monitors the stacker positions over the whole distance. The position of the lift in the stacker tray is adjusted according to the position of the stacker upper part. If one of the microswitches reports a position, this has to correspond to the values of the stacker-pos-sensor. The error message `7D.0B STACKER ERROR` is set if a certain plausibility condition is not fulfilled:

The stacker is triggered and the stacker-pos sensor generates no pulses, and after 16 seconds no microswitch position is reached.

The error is reset with keys STACKER UP↑, STACKER DOWN↓ or CHECK RESET.

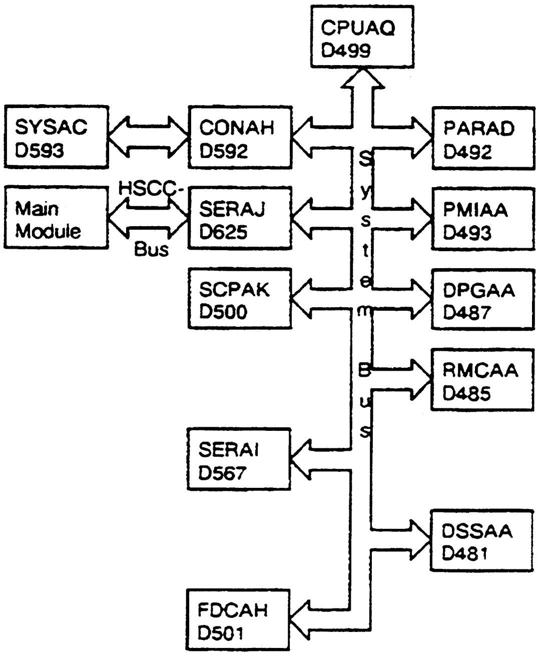
Possible Error Causes

- Sensor PCB defective
- Line eror (contact error at plug X43d, short circuit)
- Controller PCB FUM** defective
- Connector PCB FUC** defective



81.00 System Bus Timeout

81.00	SYSTEM BUS TIMEOUT



CPUAQ
D499
SYSAC
D593
CONAH
D592
PARAD
D492
Main
Module
HSCC-
Bus
SERAJ
D625
PMIAA
D493
SCPAK
D500
DPGAA
D487
System Bus
RMCAA
D485
SERAI
D567
DSSAA
D481
FDCAH
D501

Figure 3-132. 81.00 System Bus Timeout

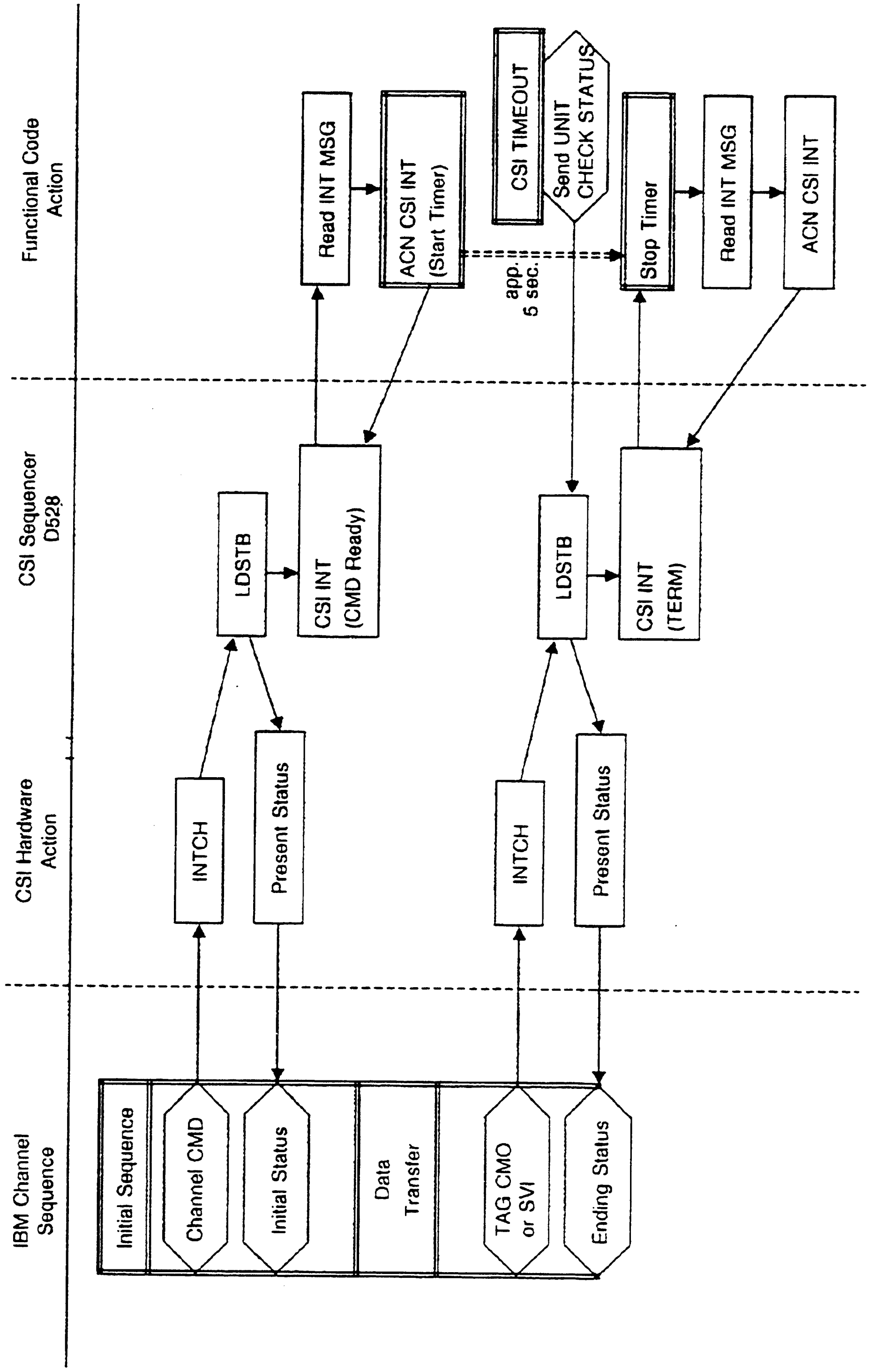
The system bus connects all modules of the APA controller, the CSI, and the device electronics. The timing of the processes on the system bus is monitored.

If the CPU PCB receives no acknowledgement of an addressed unit, port address, storage cell, or so forth, the status code `81.00 SYSTEM BUS TIMEOUT` is displayed at the operator panel.

Error Recovery

a. Set printer offline and disable printer.
b. Load test code.
c. Start test 500 mode 6.
d. Error message in display?

- **Yes**
  - exchange defective PCB after display or test code listing
  - repeat from step c. on
- **No**
  - start print test
  - print test o.k. ?
  - **No**
    - carry out procedure according to test code listing
  - **Yes**
    - boot printer online
    - hand over printer to customer
    - if a further online error occurs, call an expert.


IBM Channel Sequence
CSI Hardware Action
CSI Sequencer D528
Functional Code Action
Initial Sequence
Channel CMD
Initial Status
Data Transfer
TAG CMO or SVI
Ending Status
INTCH
Present Status
INTCH
Present Status
LDSTB
CSI INT (CMD Ready)
LDSTB
CSI INT (TERM)
Read INT MSG
ACN CSI INT (Start Timer)
CSI TIMEOUT
Send UNIT CHECK STATUS
app. 5 sec.
Stop Timer
Read INT MSG
ACN CSI INT

82.00 CSI Timeout

```
82.00      CSI TIMEOUT
```

Figure 3-133. 82.00 CSI Timeout

The communication between CSI and FC is monitored by the FC by means of a timer. The monitoring becomes active whenever CSI reports a new channel command with CMD READY INT to the FC. If the CSI sends no TERM INT to the FC within a certain interval after CMD READY INT, the FC generates the error message `82.00 CSI TIMEOUT`, as well as sense bytes that are sent to the system.

Error Recovery

- Carry out FC trace menu and CSI trace menu via LPRD.
- Carry out dump 1 and then start test 108 in test code.
- Run CSI tests (switch over bypass switch, disconnect plug on D536); start test 900 - 910.
- Carry out document evaluation with the help of the maintenance support document.
- Corresponding to the error analysis and the incorrect output, replace a PCB in the CSI, if necessary.

83.00 Bus Parity Error

```
83.00     BUS PARITY ERROR
```

Figure 3-134. 83.00 Bus Parity Error

The system bus connects all modules of the APA controller, the CSI, and the device electronics. The system bus is monitored for parity. If one of the modules detects a parity error when reading from the system bus, the status code `83.00 BUS PARITY ERROR` is displayed at the operator panel.

Error Recovery

A. Error cause is usually a disturbing pulse, which may not occur again; if the error is "**permanent**" or if it occurs frequently, take the following measures:

   a. Set printer offline and disable printer.
   b. Load test code.
   c. Start test 601 mode 2.
   d. Error message in display?
      Yes
        exchange defective PCB after display or test code listing
        repeat beginning with step c.
      No
        start print test
        print test o.k. ?
          No
            carry out procedure according to test code listing
          Yes
            boot printer online
            hand over printer to customer
            if error reoccurs, refer to **B** or call expert.

B. If the error source cannot be detected by means of a test code, the module which has detected a parity error can be found by evaluating sense byte 9 and sense byte 10 at the console.

The contents of sense byte 9 and sense byte 10 are defined later.

84.00 PAC RAM Parity Error

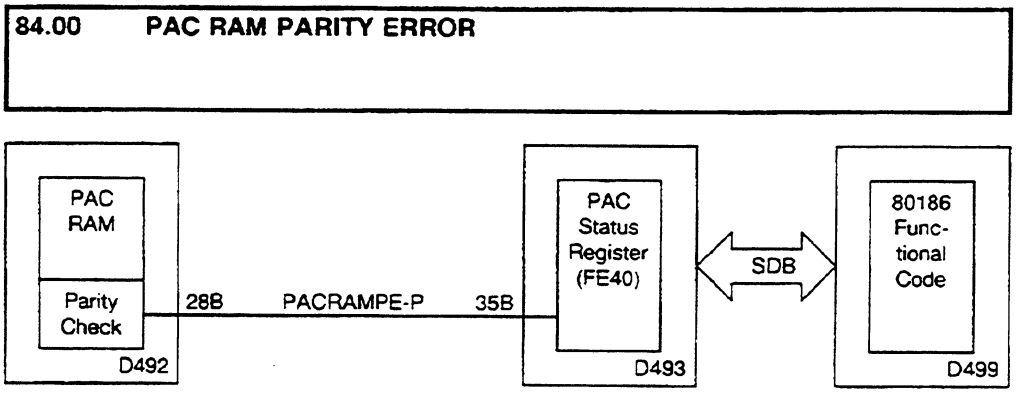

84.00 PAC RAM PARITY ERROR
PAC RAM
Parity Check
D492
28B
PACRAMPE-P
35B
PAC Status Register (FE40)
D493
SDB
80186 Functional Code
D499

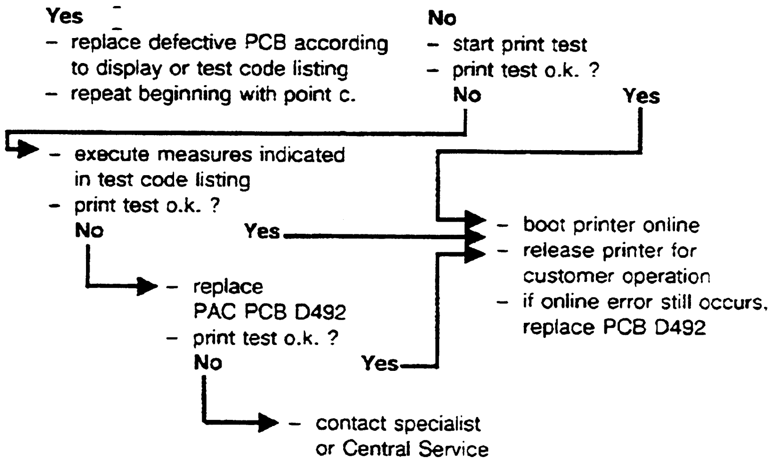
Figure 3-135. 84.00 PAC RAM Parity Error

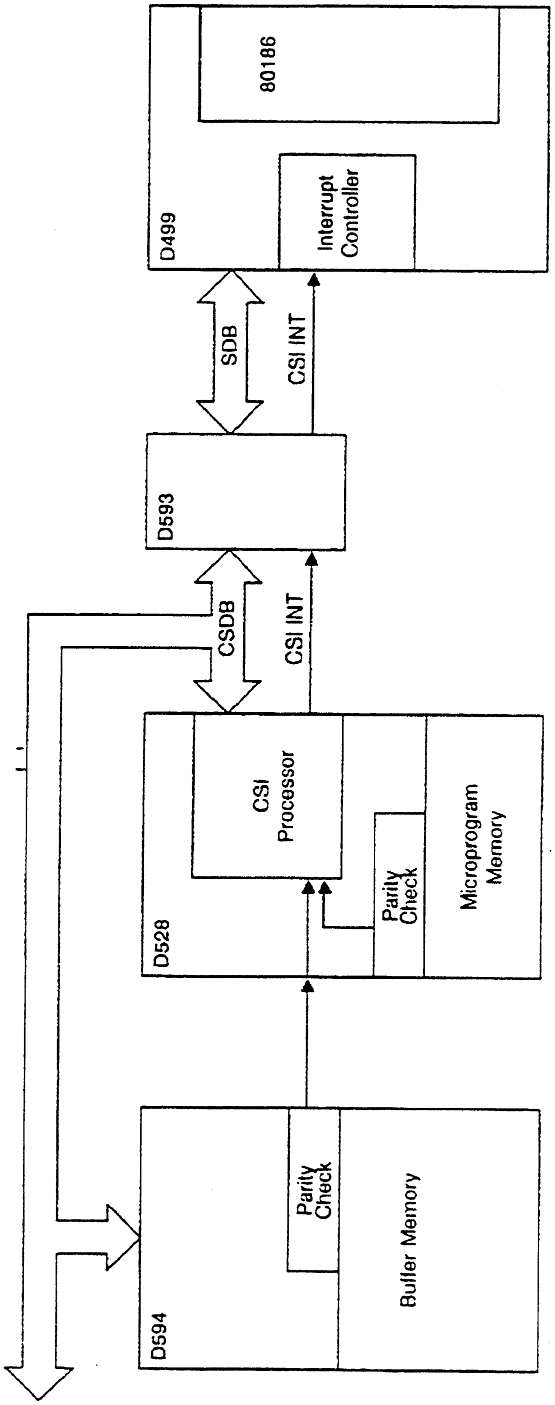
The PAC RAM is a 128 kB static memory containing page data, various tables, and variables. If the PAC detects a parity error while reading out this memory, bit 2^{11} will be set in the PAC status register (FE40). If the FC recognizes bit 2^{11} when reading the PAC status register, 84.00 PAC RAM PARITY ERROR will be displayed on the operator panel.

Error Recovery

This error is usually caused by a glitch which may not occur again. If the error is "**permanent**" or occurs repeatedly, perform the following routines:

a. Set printer offline, disable.
b. Load test code.
c. Start test 700, mode 4.
d. Error message displayed?


Yes
- replace defective PCB according to display or test code listing
- repeat beginning with point c.
No
- start print test
- print test o.k. ?
No
Yes
- execute measures indicated in test code listing
- print test o.k. ?
No
Yes
- replace PAC PCB D492
- print test o.k. ?
No
Yes
- boot printer online
- release printer for customer operation
- if online error still occurs, replace PCB D492
- contact specialist or Central Service


80186
Interrupt Controller
D499
SDB
CSI INT
D593
CSDB
CSI INT
CSI Processor
Parity Check
Microprogram Memory
D528
Parity Check
Buffer Memory
D594

85.00 CSI RAM Parity Error

85.00	**CSI RAM PARITY ERROR**

Figure 3-136. 85.00 CSI RAM Parity Error

All static CSI RAMs on PCB D594 and D528 are monitored separately for parity; these buffers are not only accessed by the Functional Code, but also by the channel hardware and the CSI sequencer. If this monitoring is active and an error occurs, the CSI sequencer reports this via error message code to the FC. The FC in turn generates sense bytes which are sent to the system, and causes `85.00 CSI RAM PARITY ERROR` to be displayed on the operator panel.

Error Recovery

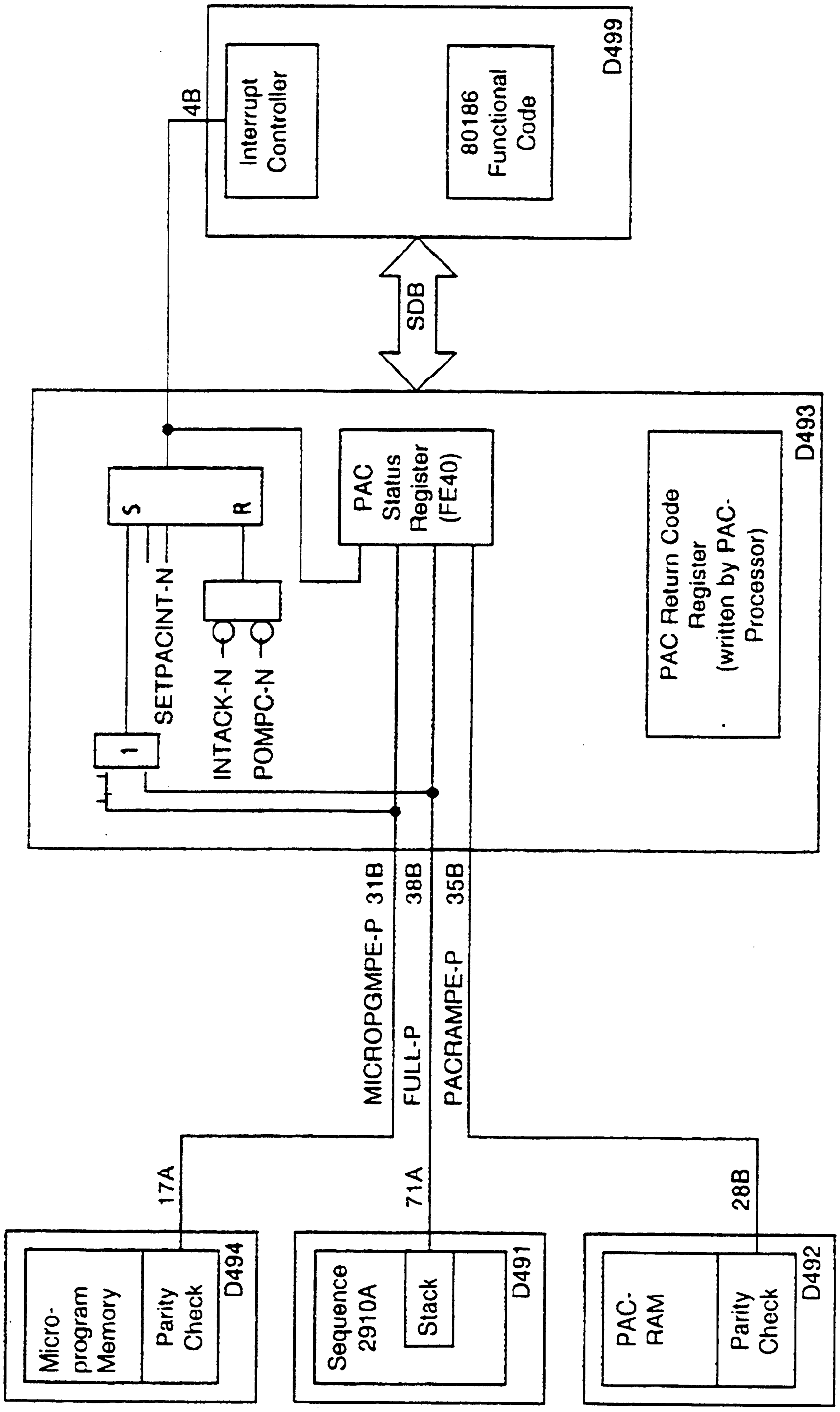
- Note sense bytes from the syslog and evaluate them as follows:

```
Sense bytes 0 - 23
0              5             10   12       15         20      22
23
10 85 08 61 85 00 00 00 00 00 00 00 xx 00 00 00 00 00 00 00 xx xx
xx xx
                                   |
                              Error Code
```

X'11' = Microcode Parity Error ⇒ error cause D528

X'14' = Buffer Memory Parity Error ⇒ error cause D594

- Read address FFB4 via LPRD; it contains the currently valid error code.
- Generate Dump 1 and then start test 108 in the test code.
- Perform CSI tests (switch over bypass switch and disconnect plug on PCB D536) ; start tests 902 - 910.
- Replace PCB according to error evaluation (error frequency) and CSI test result.


D499
Interrupt Controller
80186 Functional Code
4B
SDB
D493
S
R
PAC Status Register (FE40)
SETPACINT-N
INTACK-N
POMPC-N
1
PAC Return Code Register (written by PAC-Processor)
MICROPGMPE-P 31B
FULL-P 38B
PACRAMPE-P 35B
17A
71A
28B
Micro-program Memory
Parity Check
D494
Sequence 2910A
Stack
D491
PAC-RAM
Parity Check
D492

86.00 PAC Inoperable

86.00 PAC INOPERABLE

Figure 3-137. 86.00 PAC Inoperable

The Page Area Controller (PAC) is responsible for page editing, processing of text controls, editing of images, and RPG and device control. The FC monitors the PAC functions. If there is no response or an incorrect response from PAC to FC, or if PAC has detected an error in the PAC status register or PAC return code register, the status code `86.00 PAC INOPERABLE` will be displayed on the operator panel.

Error Recovery

A. Error is "**permanent**":

  a. Set printer offline, disable.

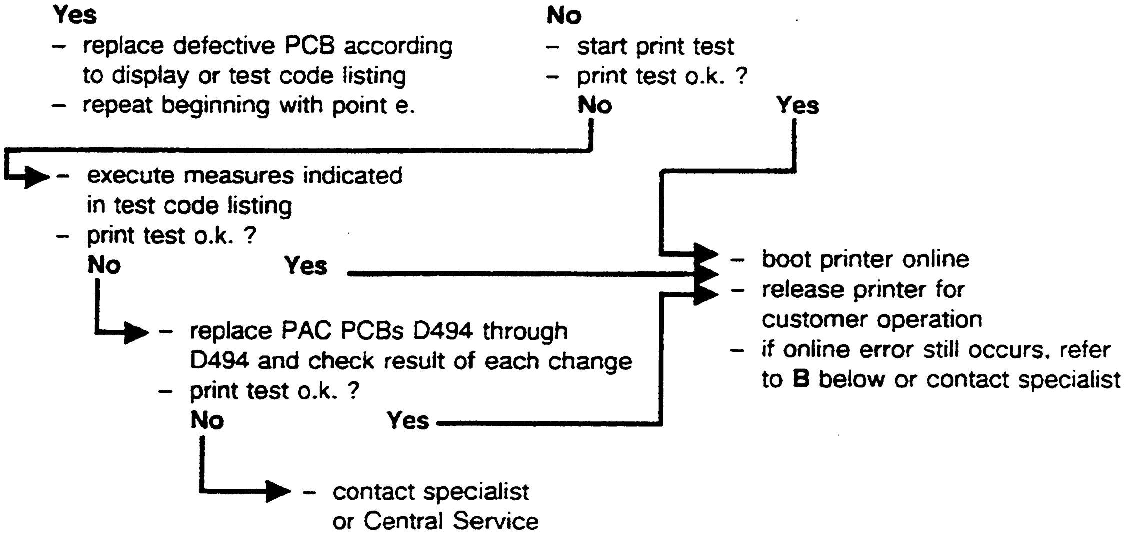
  b. Execute dump (Dump 1)

  c. Load test code.

  d. Start print test 108 (trace buffer).

  e. Start test 700, mode 4.

  f. Error message displayed?


Yes
- replace defective PCB according to display or test code listing
- repeat beginning with point e.
No
- start print test
- print test o.k. ?
No
Yes
- execute measures indicated in test code listing
- print test o.k. ?
No
Yes
- replace PAC PCBs D494 through D494 and check result of each change
- print test o.k. ?
No
Yes
- contact specialist or Central Service
- boot printer online
- release printer for customer operation
- if online error still occurs, refer to B below or contact specialist

B. If the error is "**sporadic**" or the error cause cannot be defined via test code, evaluate sense byte 9 (console) to locate the error:

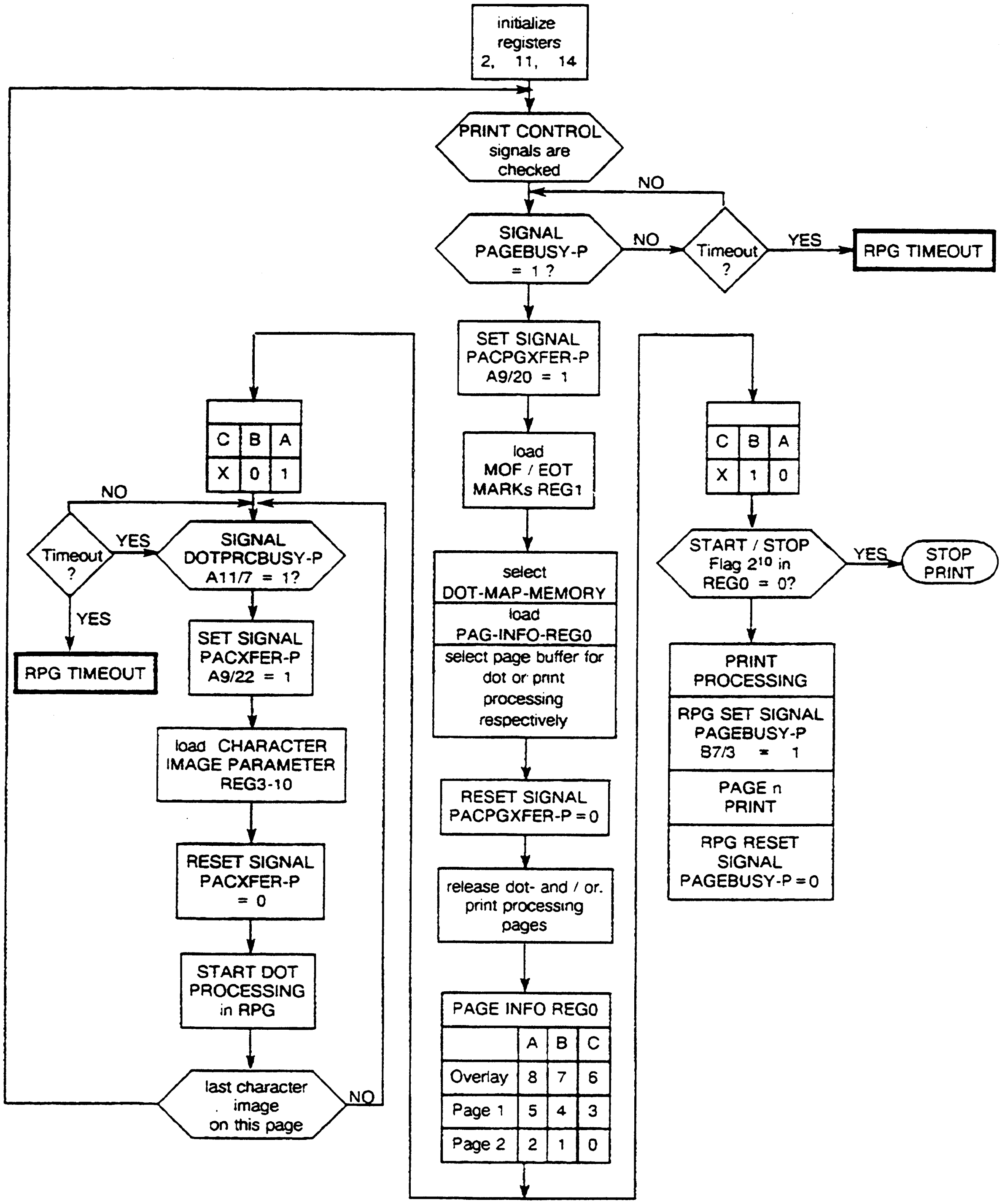
Sense Byte 9	Description	Error Cause
88 H	PAC RAM parity error	D492
84 H	PAC microprogram parity error	D494
82 H	PAC STACK OVERFLOW	Firmwood error

A PAC STACK OVERFLOW is usually a firmware error, that is, it cannot be removed by replacing the PCB. If a PAC STACK OVERFLOW occurs, perform the following routines:

- Set printer to mode *Online Test.*
- Connect LPRD.
- Read registers FE60 through FE66 (PAC TRACE REG) and note contents.
- Execute dump (Dump 1).
- Load test code.
- Start print test 108 (trace buffer).
- Check whether problem occurs only with a certain job.
- Contact specialist or Central Service.

If sense byte 9 does not provide any information, or the error cause cannot be defined by any of the measures described above, try to solve the problem by replacing PAC PCBs (replace PCBs one by one and check result of each change).

87.00 RPG Timeout


initialize registers 2, 11, 14
PRINT CONTROL signals are checked
NO
SIGNAL PAGEBUSY-P = 1 ?
NO
Timeout ?
YES
RPG TIMEOUT
SET SIGNAL PACPGXFER-P A9/20 = 1
load MOF / EOT MARKs REG1
select DOT-MAP-MEMORY
load PAG-INFO-REG0
select page buffer for dot or print processing respectively
RESET SIGNAL PACPGXFER-P = 0
release dot- and / or. print processing pages
PAGE INFO REG0
A B C
Overlay 8 7 6
Page 1 5 4 3
Page 2 2 1 0
C B A
X 0 1
NO
Timeout ?
YES
SIGNAL DOTPRCBUSY-P A11/7 = 1?
YES
RPG TIMEOUT
SET SIGNAL PACXFER-P A9/22 = 1
load CHARACTER IMAGE PARAMETER REG3-10
RESET SIGNAL PACXFER-P = 0
START DOT PROCESSING in RPG
last character image on this page
NO
C B A
X 1 0
START / STOP Flag 2¹⁰ in REG0 = 0?
YES
STOP PRINT
PRINT PROCESSING
RPG SET SIGNAL PAGEBUSY-P B7/3 = 1
PAGE n PRINT
RPG RESET SIGNAL PAGEBUSY-P = 0

87.00 RPG Timeout Flowchart

87.00 RPG TIMEOUT

The Raster Pattern Generator (RPG) converts the received coded data into a dot pattern that is stored with the accompanying location data in the page buffer (dot processing).

If a page has been processed completely, the contents of the page buffer are transferred to the frequency generator in synchronization with the laser beam movement (print processing). These two functions are executed in parallel in both page buffers, that is, one page buffer is dot-processing while the other is print-processing.

The PAC controls the switching of page buffers by monitoring signals DOTPRCBUSY (dot-processing active) and PAGEBUSY (print-processing active) and by loading page-info-register accordingly. If the PAC detects a timeout, it reports a timeout error interrupt to the FC in the return code register; and the FC then causes status code `87.00 RPG TIMEOUT` to be displayed on the operator panel.

Error Recovery

A. Error is "**permanent**":

  a. Set printer offline, disable.

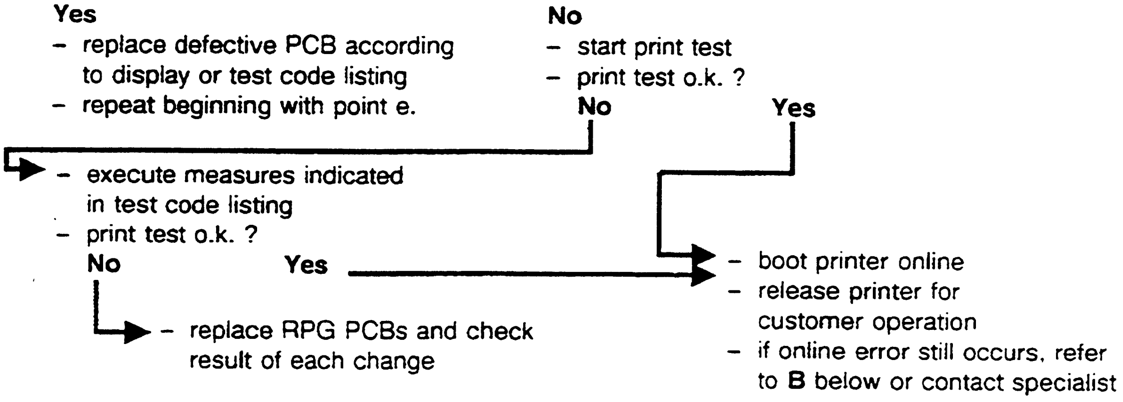
  b. Execute dump (Dump 1).

  c. Load test code.

  d. Start print test 108 (trace buffer).

  e. Start test 800, mode 4.

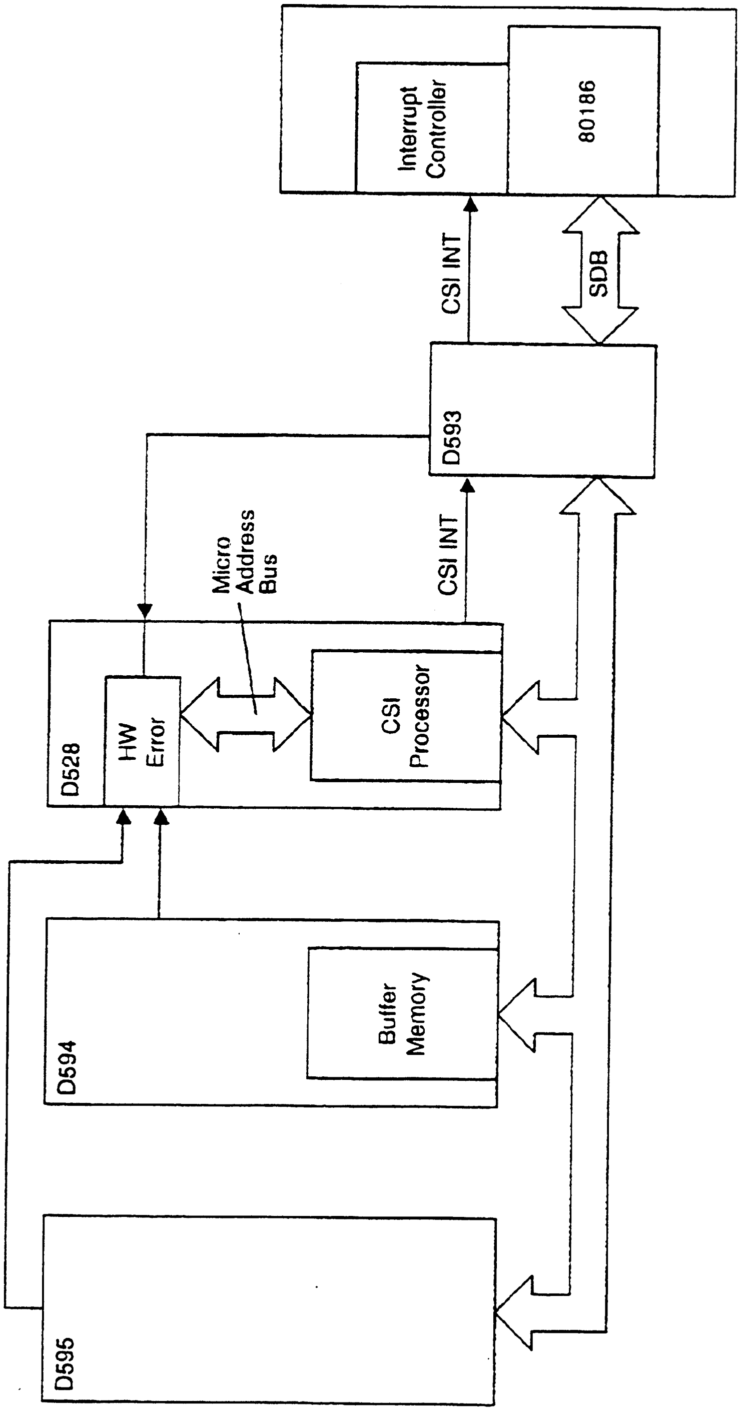
  f. Error message displayed?


Yes
- replace defective PCB according to display or test code listing
- repeat beginning with point e.
No
- start print test
- print test o.k. ?
No
Yes
- execute measures indicated in test code listing
- print test o.k. ?
No
Yes
- replace RPG PCBs and check result of each change
- boot printer online
- release printer for customer operation
- if online error still occurs, refer to B below or contact specialist

B. If the error is "**sporadic**" or the error cause cannot be defined via test code, try to remove the error by replacing RPG PCBs (replace PCBs one at a time and check result of each change). If the source of the error cannot be identified, perform the following routines:

- Set printer to mode *Online Test.*
- Connect LPRD.
- Set dump flag in RPG control register: SWFE00,100.
- Read the following registers and note contents:

  PAGE INFO (FE20)
  DOT-PROC-CTRL (FE26)
  PRINT-PROC-CTRL (FE3E)
  STAT1 (FE00)
  STAT2 (FE02)
- Reset dump flag: SWFE00,0.
- Execute dump (Dump 1).
- Load test code.
- Start print test 108 (trace buffer).
- Check whether error is reproducible (certain job, other marginal conditions).
- Contact specialist or Central Service.


Interrupt Controller
80186
CSI INT
SDB
D593
CSI INT
Micro Address Bus
D528
HW Error
CSI Processor
D594
Buffer Memory
D595

88.00 CSI Inoperable

88.00 CSI INOPERABLE

Figure 3-138. 88.00 CSI Inoperable

CSI sequencer D528 is used to monitor the CSI-internal data paths and the communication with the FC. The PCB features the hardware that reports the error cause via error interrupt and error code address to the CSI microprogram.

The CSI sequencer reports this to the FC with CSI Interrupt and CSI Error Code. If a valid or invalid INT-MSG or error code is identified by the FC, or if a new CMD READY INT is sent to the FC by the CSI before FC has terminated the previous channel command with DEVICE END, then the FC generates operator panel display `88.00 CSI INOPERABLE` and sense bytes that are sent to the system.

Error Recovery

- Note sense bytes from the syslog and evaluate them as follows:

```
Sense bytes 0-23
0               5               10   12         15         20       22
23
10 88 08 61 88 00 00 00 00 00 00 00 xx 00 00 00 00 00 00 00 xx xx
xx xx
                                        |
                                   Error code
```

X'10' = No Response from Buffer Memory ⇒ error cause D594

X'12' = 2910 Stack Overflow ⇒ error cause D528 (SW)

X'13' = Port not used

X'15' = CSI System Bus Parity Error ⇒ error cause D593

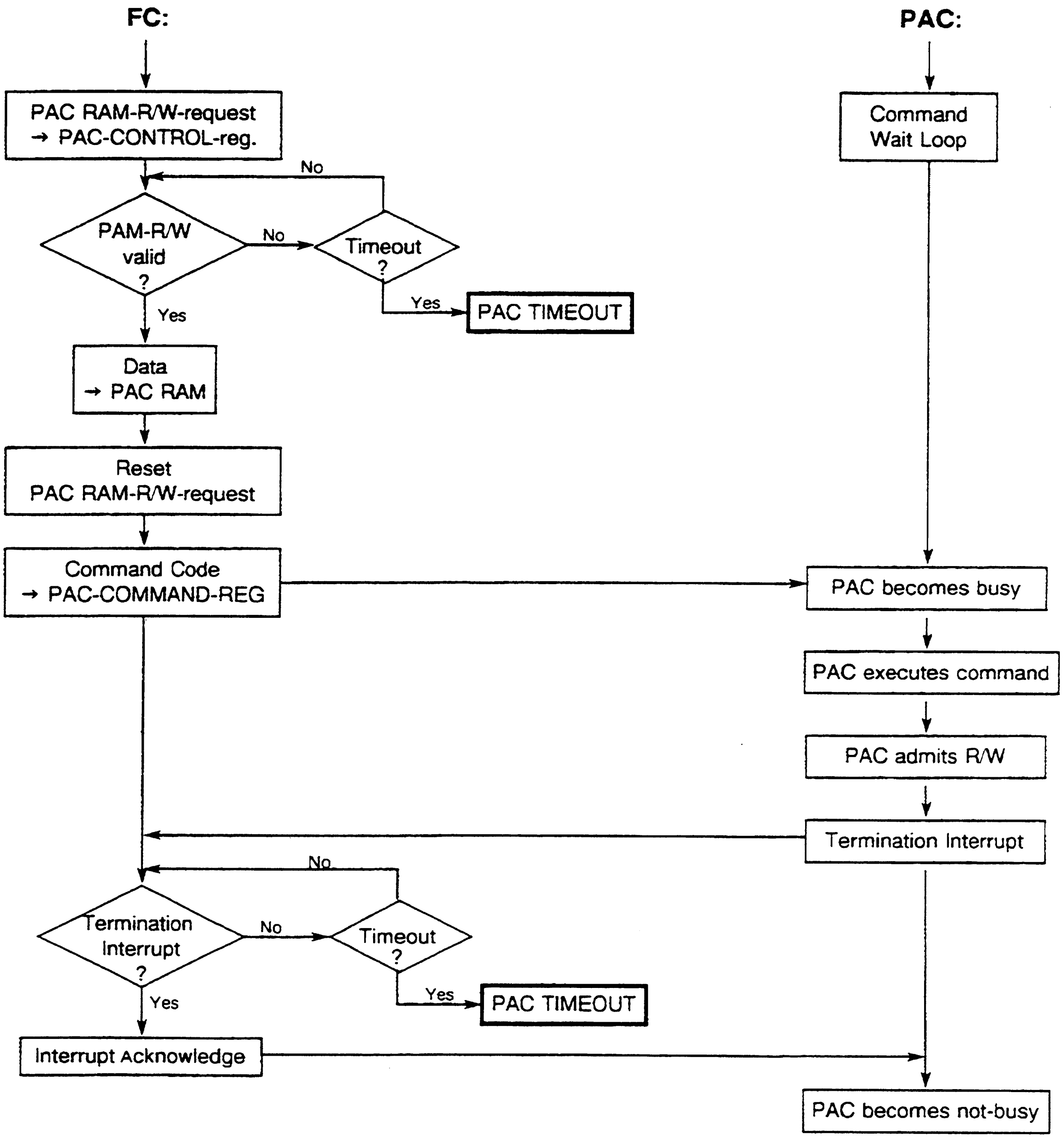
X'16' = Port not used

X'17' = Trap Internal Test ⇒ error cause D528

X'18' = ACK from FC missing ⇒ error cause D528/D593

X'20' = Merge error ⇒ error cause D528 (SW)

- Read address FFB4 via LPRD; it contains the currently valid error code.
- Generate Dump 1 and then start test 108 in the test code.
- Perform CSI tests (switch over bypass switch and disconnect plug on PCB D536) ; start tests 902 - 910.
- Replace PCB due to error evaluation and CSI test result.


FC:
PAC:
PAC RAM-R/W-request → PAC-CONTROL-reg.
Command Wait Loop
No
PAM-R/W valid ?
No
Timeout ?
Yes
Yes
PAC TIMEOUT
Data → PAC RAM
Reset PAC RAM-R/W-request
Command Code → PAC-COMMAND-REG
PAC becomes busy
PAC executes command
PAC admits R/W
Termination Interrupt
No
Termination Interrupt ?
No
Timeout ?
Yes
Yes
PAC TIMEOUT
Interrupt Acknowledge
PAC becomes not-busy

89.00 PAC Timeout

89.00 PAC TIMEOUT

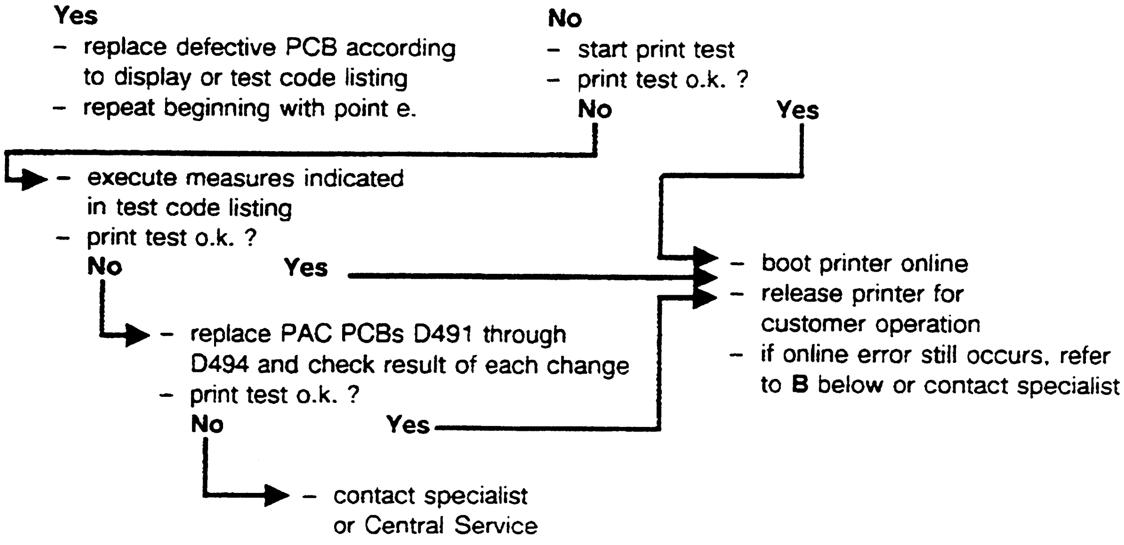
Figure 3-139. 89.00 PAC Timeout

The Page Area Controller (PAC) is responsible for page editing, processing of text controls, editing of images, and RPG and device control. For each function, the FC transfers a command code to the PAC into the PAC command register and stores, if necessary, the attending data into the PAC RAM (WRITE TEXT command). While the command is processed, the PAC is in BUSY status, and the FC cannot access the PAC RAM. As soon as command execution is terminated, a Termination Interrupt is transferred to the FC and access to the PAC RAM is possible again. Command execution in the PAC is monitored for timeouts by the FC. If there is no response from the PAC to the FC, or if PAC RAM access is not admitted by PAC, the FC causes the status code `89.00 PAC TIMEOUT` to be displayed at the operator panel.

Error Recovery

A. Error is "**permanent**":

  a. Set printer offline, disable.
  b. Execute dump (Dump 1).
  c. Load test code.
  d. Start print test 108 (trace buffer).
  e. Start test 700, mode 4.
  f. Error message displayed?



Yes
- replace defective PCB according to display or test code listing
- repeat beginning with point e.

No
- start print test
- print test o.k. ?

No
- execute measures indicated in test code listing
- print test o.k. ?

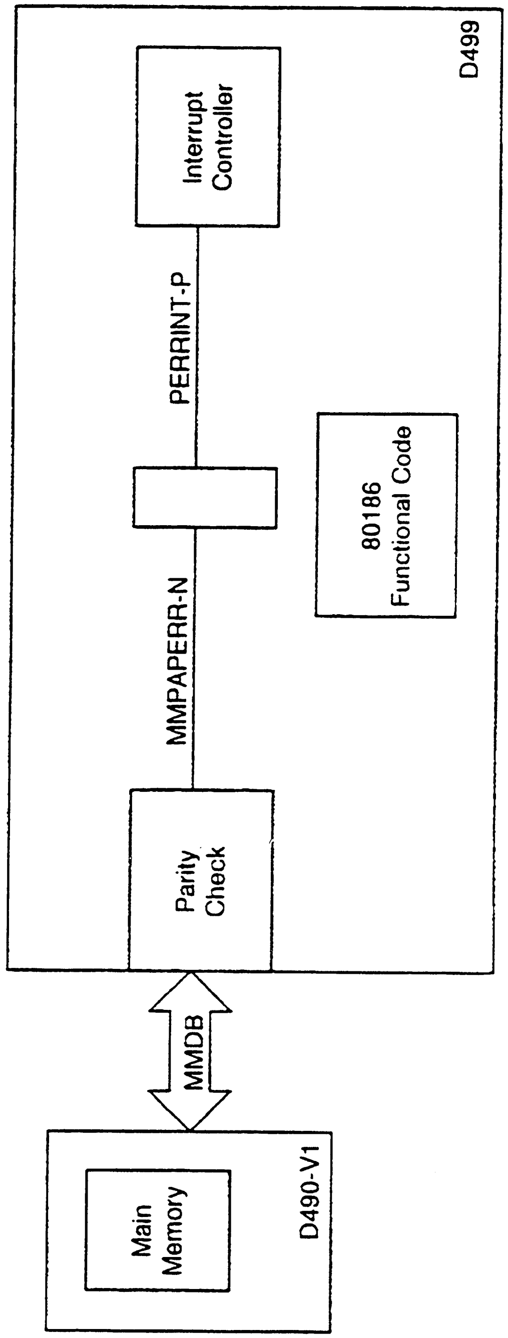
No
- replace PAC PCBs D491 through D494 and check result of each change
- print test o.k. ?

No
- contact specialist or Central Service

Yes
- boot printer online
- release printer for customer operation
- if online error still occurs, refer to **B** below or contact specialist

B. If the error is "**sporadic**" or the error cause cannot be defined via test code, try to remove the error by replacing PAC PCBs (replace PCBs one at a time and check result of each change). If the source of the error cannot be identified, perform the following routines:

- Set printer to mode *Online Test.*
- Connect LPRD.
- Read registers FE60 through FE66 (PAC TRACE REG) and note contents:
- Execute dump (Dump 1).
- Load test code.
- Start print test 108 (trace buffer).
- Check whether error occurs only with a certain job.
- Contact specialist or Central Service


D499
Interrupt Controller
PERRINT-P
80186 Functional Code
MMPAPERR-N
Parity Check
MMDB
Main Memory
D490-V1

8B.00 Main Memory Parity Error

8B.00 MAIN MEMORY PARITY ERROR

Figure 3-140. 8B.00 Main Memory Parity Error

The main memory is a 640 KB dynamic RAM. It is served via the internal bus (MMDB) of the CPU PCB where the memory control is also located. If the CPU PCB detects a parity error while reading out the main memory, status code `8B.00 MAIN MEMORY PARITY ERROR` will be displayed on the operator panel.

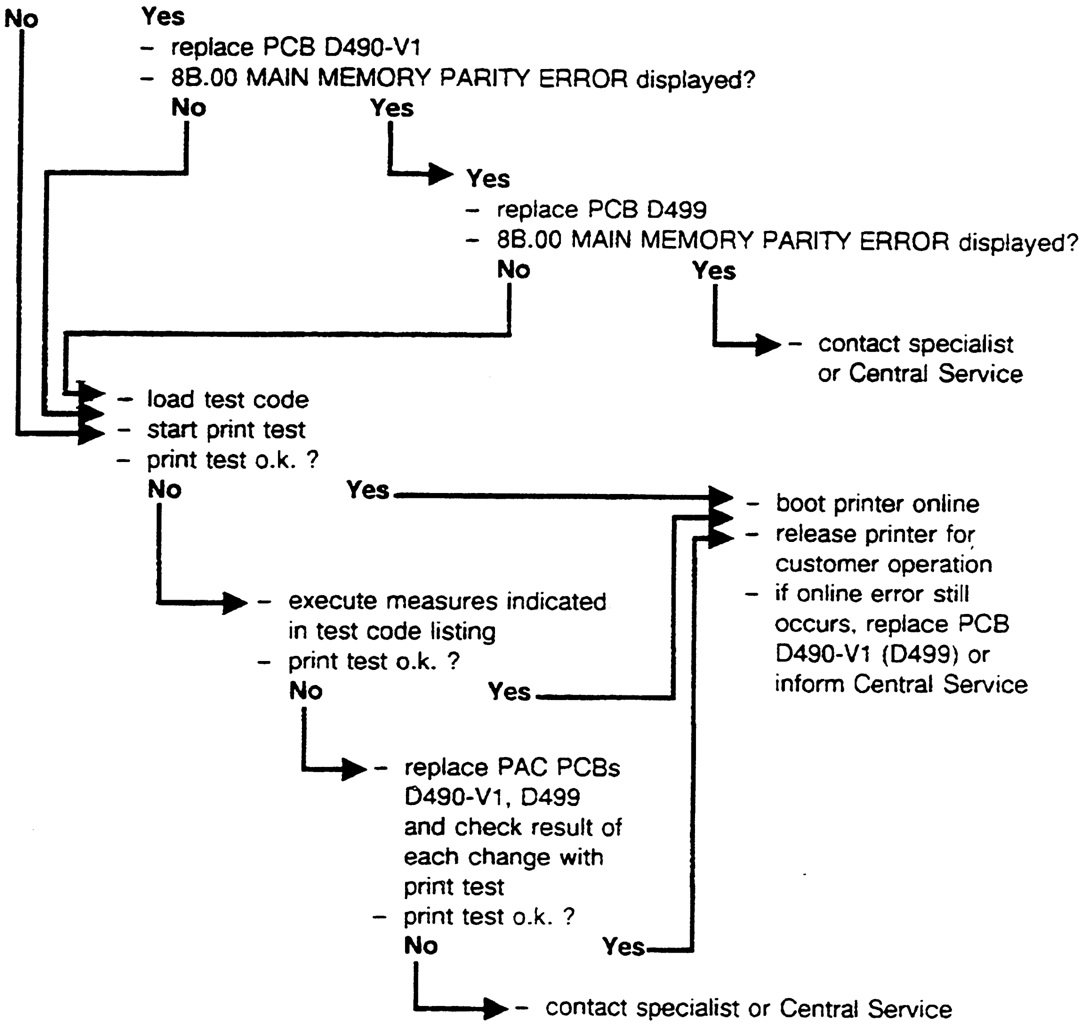
Error Recovery

The error is usually caused by a glitch that may not occur again. If the error is "**permanent**" or occurs repeatedly, perform the following routines:

a. Set printer offline and disable.

b. Boot printer.

c. `8B.00 MAIN MEMORY PARITY ERROR` error displayed?


No
Yes
- replace PCB D490-V1
- 8B.00 MAIN MEMORY PARITY ERROR displayed?
No
Yes
Yes
- replace PCB D499
- 8B.00 MAIN MEMORY PARITY ERROR displayed?
No
Yes
- contact specialist or Central Service
- load test code
- start print test
- print test o.k. ?
No
Yes
- boot printer online
- release printer for customer operation
- if online error still occurs, replace PCB D490-V1 (D499) or inform Central Service
- execute measures indicated in test code listing
- print test o.k. ?
No
Yes
- replace PAC PCBs D490-V1, D499 and check result of each change with print test
- print test o.k. ?
No
Yes
- contact specialist or Central Service

90.XX Transfer Corotron Error

90.XX	TRANSFER COROTRON ERROR
90.00	TRANSCLEAN TIMEOUT
90.01	BOTH SENSORS ACTIV
90.02	TRANSOUT-SENSOR DEFEKT
90.03	TRANSIN-SENSOR DEFEKT
90.04	TRANSPULS-ERROR

Figure 3-141. 90.XX Transfer Corotron Error

Processes During Transfer Corotron Wire Cleaning

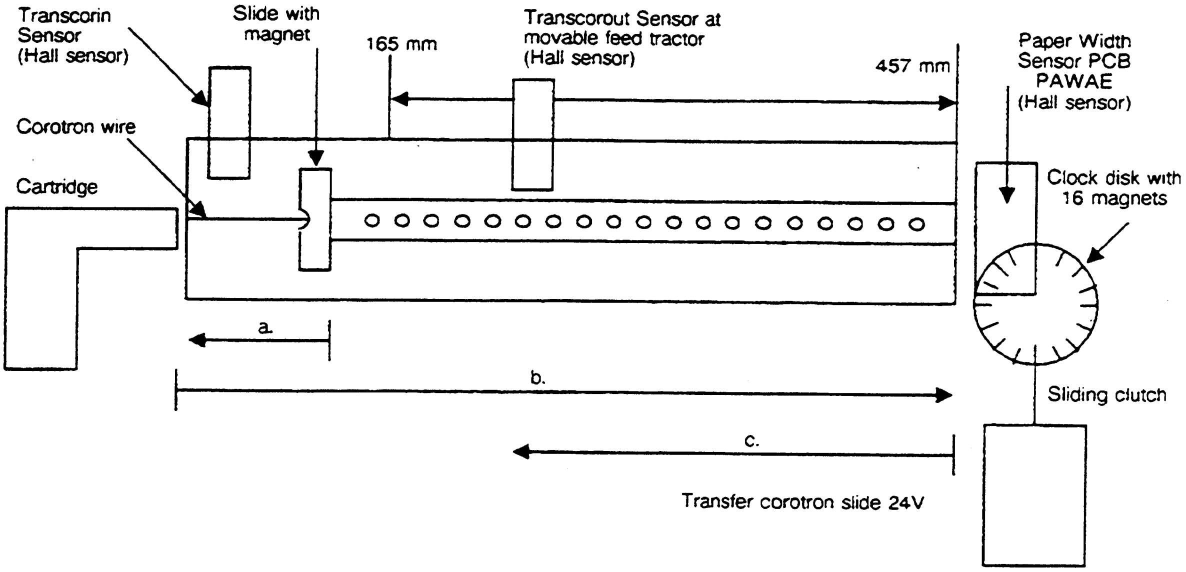
a. The corotron slide starts a trace in forward direction. If the transcorin position has not been reached after 6.5 seconds, the error message `90.03 TRANSIN-SENSOR DEFECT` is displayed.

b. From the transcorin position, the slide moves backward until the paper width sensor has detected 69 signals. If the 69 signals PAPWIDTH are not detected after 6.5 seconds, the error message `90.00 TRANSCLEAN TIMEOUT` is set.

c. From the backward position the slide moves again in forward direction until the transcorout sensor is reached. The clocks from the rear position to the transcorout sensor are counted and the current paper width is calculated. The paper width is sent to submodule 3 via the main module. If the transcorout sensor has not been reached after 6.5 seconds, the error message `90.02 TRANSOUT-SENSOR DEFECT` is displayed.

d. If the transcorin sensor and the transcorout sensor are detected at the same time, the error message `90.01 BOTH SENSORS ACTIV` is displayed.

e. If no signals PAPWIDTH are detected after triggering the transfer corotron slide motor, the error message `90.04 TRANSPULS-ERROR` is set.


Transcorin Sensor (Hall sensor)
Slide with magnet
165 mm
Transcorout Sensor at movable feed tractor (Hall sensor)
457 mm
Paper Width Sensor PCB PAWAE (Hall sensor)
Corotron wire
Cartridge
Clock disk with 16 magnets
a.
b.
Sliding clutch
c.
Transfer corotron slide 24V

90.00 Transfer Corotron Error: Transclean Timeout

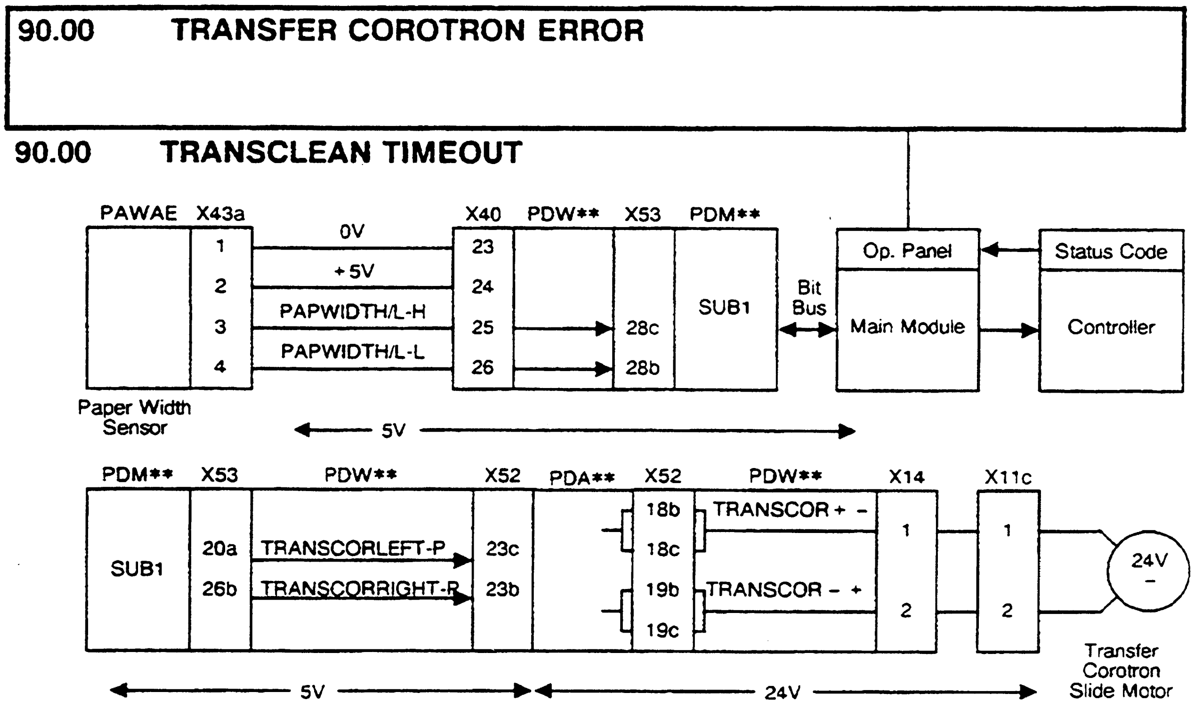

90.00 TRANSFER COROTRON ERROR
90.00 TRANSCLEAN TIMEOUT
PAWAE
X43a
X40
PDW**
X53
PDM**
0V
+5V
PAPWIDTH/L-H
PAPWIDTH/L-L
1
2
3
4
23
24
25
26
28c
28b
SUB1
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Paper Width Sensor
5V
PDM**
X53
PDW**
X52
PDA**
X52
PDW**
X14
X11c
SUB1
20a
26b
TRANSCORLEFT-P
TRANSCORRIGHT-R
23c
23b
18b
18c
19b
19c
TRANSCOR + -
TRANSCOR - +
1
2
1
2
24V
-
Transfer Corotron Slide Motor
5V
24V

Figure 3-142. 90.00 Transfer Corotron Error: Transclean Timeout

Error Byte: 06/01

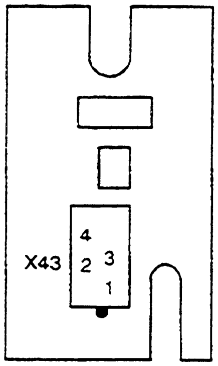
Adjustment of Transfer Corotron Slide Lasts Too Long

For paper width adjustment, the motor for the transfer corotron slide is triggered with 24V. A clock disk with 16 magnets—which can be read by the paper width sensor—is mounted on the axle of the motor. When moving out of the transcorin position to maximal width, submodule 1 expects 69± clocks within a time frame of 6.5 seconds. If the number of clocks is not reached, the error message `90.00 TRANSFER COROTRON ERROR` is set.

Possible Error Causes

- Transfer corotron slide stiff
- Transfer corotron slide motor defective
- Line error (short circuit, line breakage, or contact error)
- Paper width sensor defective, misadjusted, or connected incorrectly
- Clock disk defective (16 signals per rotation)

- Controller PCB PDM** defective
- Power supply PCB PD** defective
- Connector PCB PDW** defective



90.01 Transfer Corotron Error: Both Sensors Active

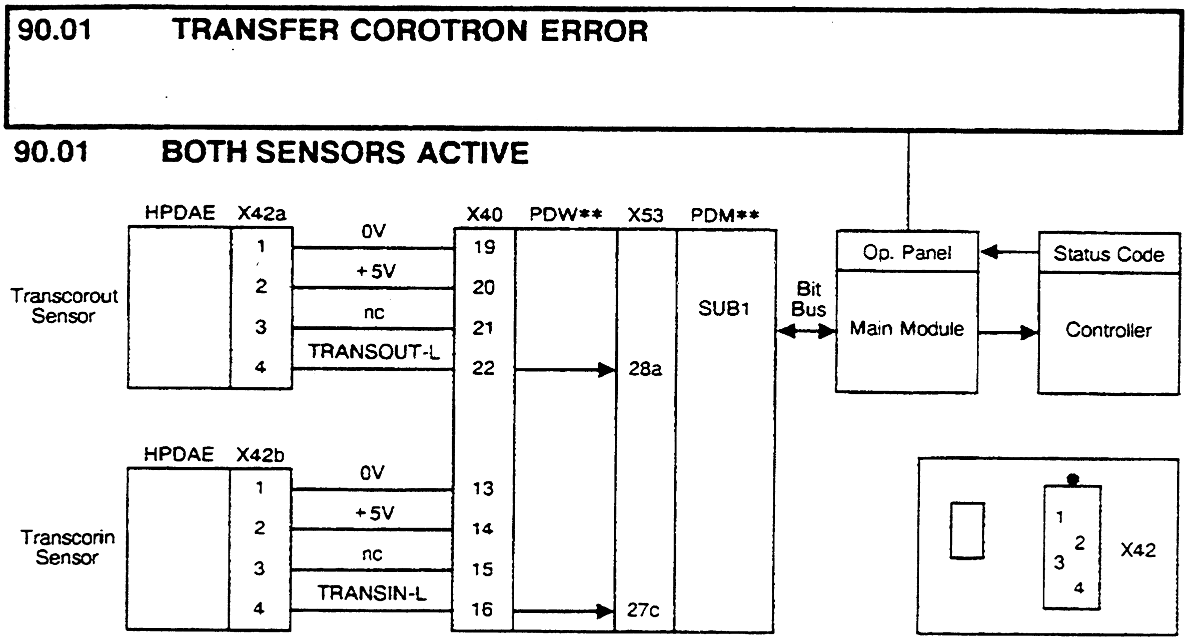

90.01 TRANSFER COROTRON ERROR
90.01 BOTH SENSORS ACTIVE
HPDAE
X42a
X40
PDW**
X53
PDM**
Transcorout Sensor
0V
+5V
nc
TRANSOUT-L
1
2
3
4
19
20
21
22
28a
SUB1
Bit Bus
Op. Panel
Main Module
Status Code
Controller
HPDAE
X42b
Transcorin Sensor
0V
+5V
nc
TRANSIN-L
1
2
3
4
13
14
15
16
27c
X42

Figure 3-143. 90.01 Transfer Corotron Error: Both Sensors Active

Error Byte: 06/02

Transcorout and Transcorin Sensor Simultaneously Active

After the transfer corotron motor has been triggered and the clocks have been checked and counted, the position is checked when the timer has run for 6.5 seconds.

If the signals TRANSOUT-L and TRANSIN-L are measured simultaneously as L (active), the error message `90.01 TRANSFER COROTRON ERROR` is set.

Possible Error Causes

- Line error (short circuit, line breakage, or contact error)
- Transcorin or transcorout sensor defective
- Controller PCB PDM** defective
- Connector PCB PDW** defective

90.02 Transfer Corotron Error: Transout-Sensor Defect

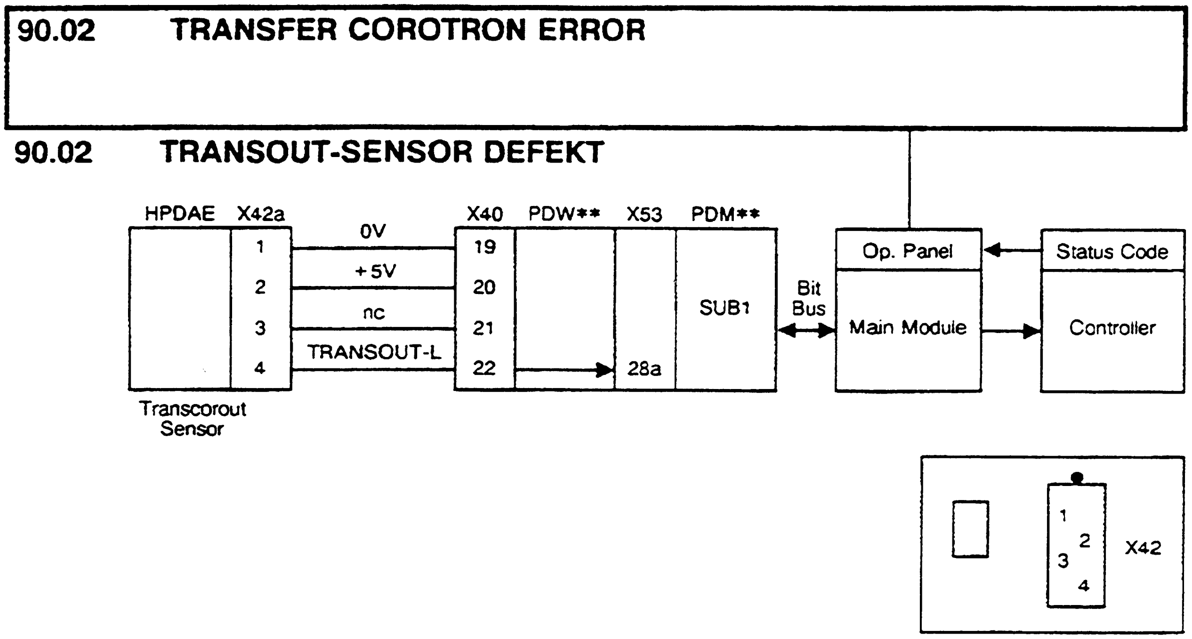

90.02 TRANSFER COROTRON ERROR
90.02 TRANSOUT-SENSOR DEFEKT
HPDAE
X42a
1
2
3
4
Transcorout Sensor
0V
+5V
nc
TRANSOUT-L
X40
19
20
21
22
PDW**
X53
28a
PDM**
SUB1
Bit Bus
Op. Panel
Main Module
Status Code
Controller
1
2
3
4
X42

Figure 3-144. 90.02 Transfer Corotron Error: Transout-Sensor Defect

Error Byte: 06/04

Signal TRANSOUT-L Not Detected for Paper Width

The motor for the transfer corotron slide has been triggered. All clocks have arrived within the time monitoring and the motor is stopped when the timer has run down. If the signal TRANSOUT-L equal L is not detected, submodule 1 issues the error message `90.02 TRANSFER COROTRON ERROR`.

Possible Error Causes

- Conveyor belt defective
- Sensor defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, or contact error)
- Controller PCB PDM** defective
- Connector PCB PDW** defective

90.03 Transfer Corotron Error: Transin-Sensor Defect

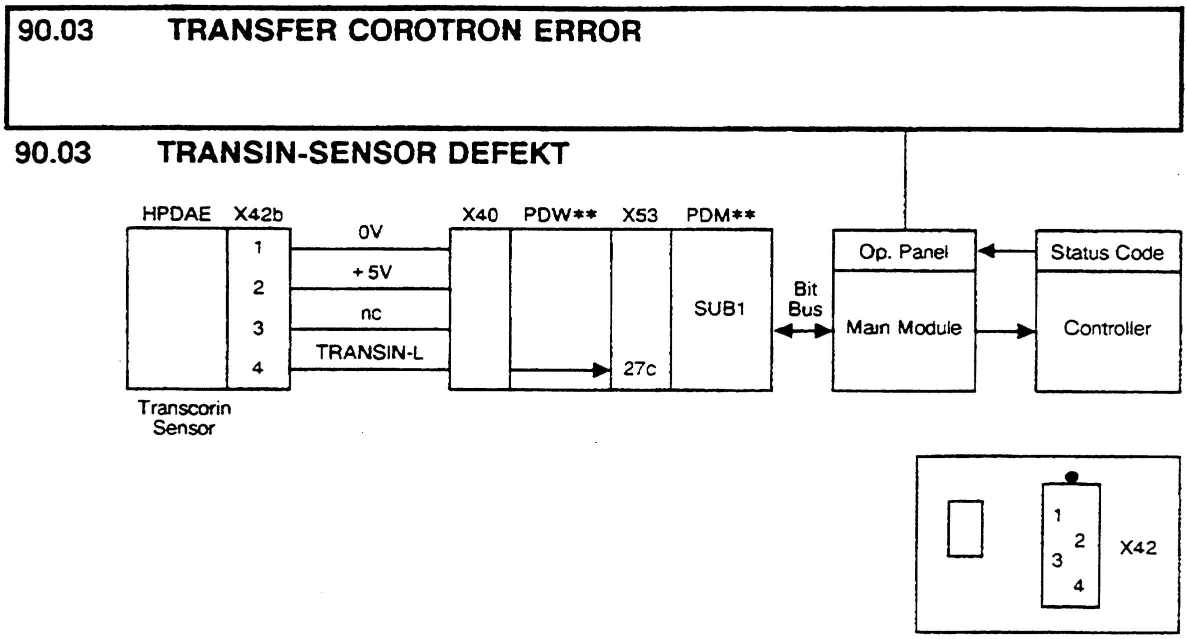

90.03 TRANSFER COROTRON ERROR
90.03 TRANSIN-SENSOR DEFEKT
HPDAE
X42b
X40
PDW**
X53
PDM**
1
2
3
4
0V
+5V
nc
TRANSIN-L
27c
SUB1
Bit Bus
Op. Panel
Status Code
Main Module
Controller
Transcorin Sensor
1
2
3
4
X42

Figure 3-145. 90.03 Transfer Corotron Error: Transin-Sensor Defect

Error Byte: 06/08

Transfer Corotron Slide Not Detected in IN Position

The motor for the transfer corotron slide has been triggered. All clocks have arrived within the time monitoring, and the motor is stopped when the timer has run down. If the signal TRANSIN-L equal L is not detected, submodule 1 issues the error message `90.03 TRANSFER COROTRON ERROR`.

Possible Error Causes

- Conveyor belt defective
- Sensor defective, misadjusted, or connected incorrectly
- Line error (short circuit, line breakage, or contact error)
- Controller PCB PDM** defective
- Connector PCB PDW** defective

90.04 Transfer Corotron Error: Transpuls Error

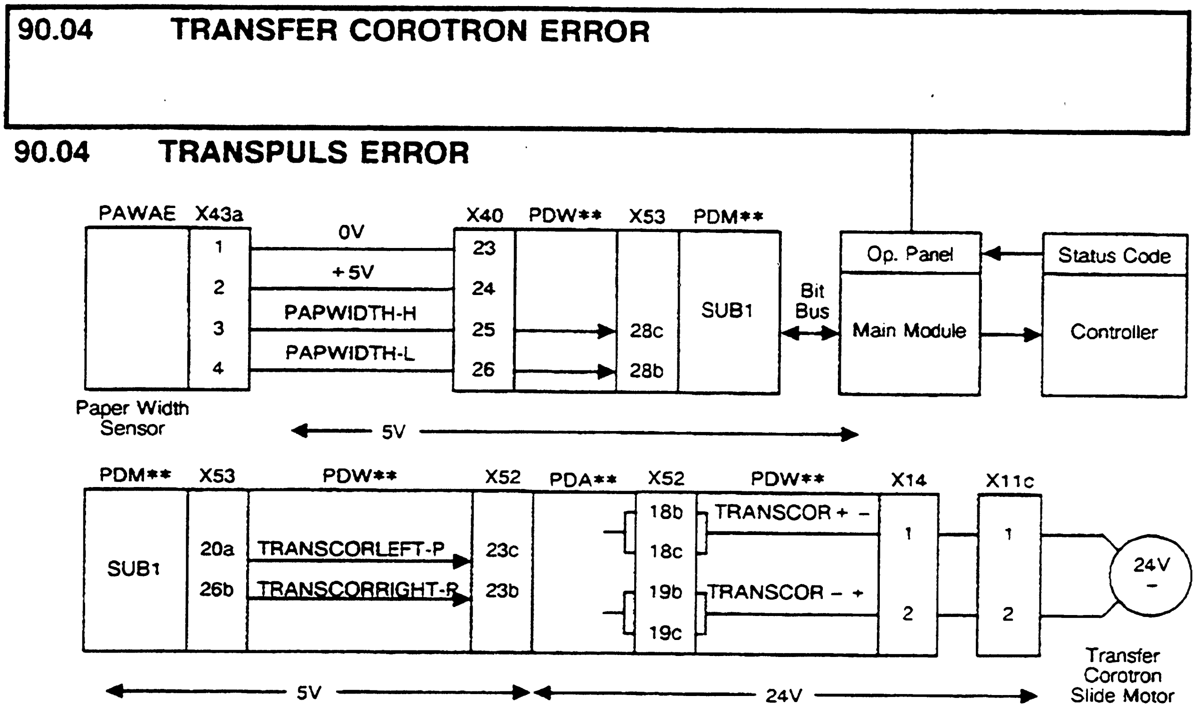

90.04 TRANSFER COROTRON ERROR
90.04 TRANSPULS ERROR
PAWAE
X43a
1
2
3
4
0V
+5V
PAPWIDTH-H
PAPWIDTH-L
X40
23
24
25
26
PDW**
X53
28c
28b
PDM**
SUB1
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Paper Width Sensor
5V
PDM**
X53
SUB1
20a
26b
PDW**
TRANSCORLEFT-P
TRANSCORRIGHT-P
X52
23c
23b
PDA**
X52
18b
18c
19b
19c
PDW**
TRANSCOR + -
TRANSCOR - +
X14
1
2
X11c
1
2
24V
-
Transfer Corotron Slide Motor
5V
24V

Figure 3-146. 90.04 Transfer Corotron Error: Transpuls Error

Error Byte: 06/10

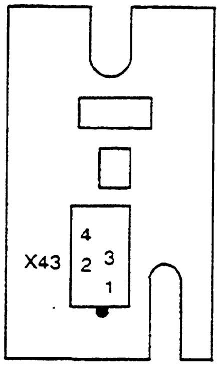
No Paper Width Signals of Paper Width Sensor

As soon as the transfer corotron slide motor is triggered, the first clocks of the paper width sensor are monitored. As soon as clocks are detected, the monitoring is deactivated. If no clocks are detected during triggering, submodule 1 issues the error message `90.04 TRANSFER COROTRON ERROR`.

Possible Error Causes

- Transfer corotron slide blocked
- Paper width sensor defective or misadjusted
- Line error (short circuit, line breakage, or contact error)
- Transfer corotron slide motor defective

- Controller PCB PDM** defective
- Power supply PCB PDA*** defective
- Connector PCB PDW** defective



91.00 Motionclock-Sensor Error: Motionclock Sensor

91.00 MOTIONCLOCK-SENSOR ERROR = Status Message
MOTIONCLOCK SENSOR = Warning (W.0D)

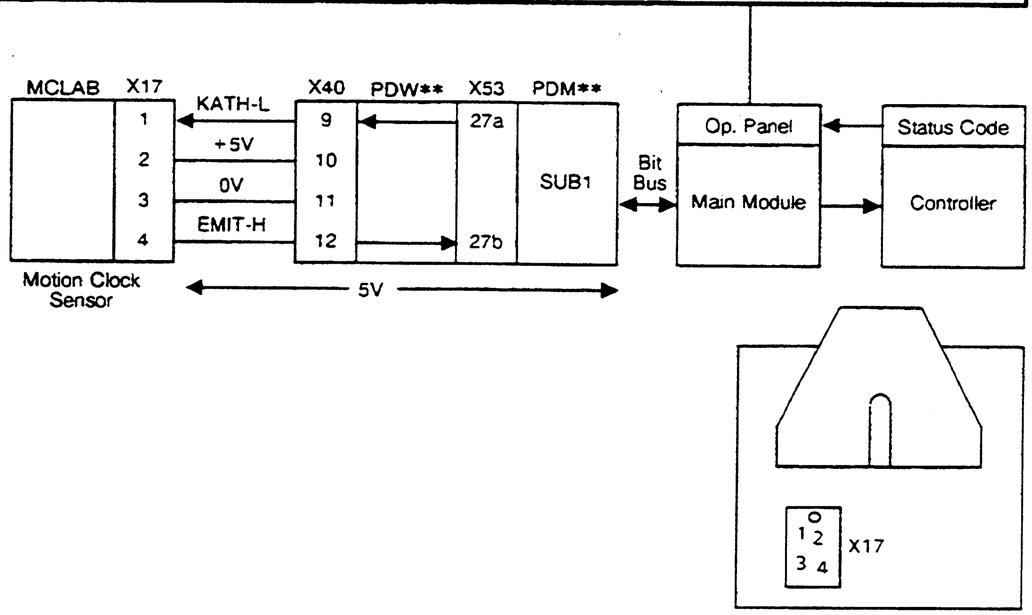

MCLAB
X17
KATH-L
X40
PDW**
X53
PDM**
1
2
3
4
+5V
0V
EMIT-H
9
10
11
12
27a
27b
SUB1
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Motion Clock Sensor
5V
1 2
3 4
X17

Figure 3-147. 91.00 Motionclock-Sensor Error: Motionclock Sensor

Error Byte: 05/20

No Paper Movement in Paper Transport

The motion sensor is aligned during the paper insert phase. For this alignment, the paper must have a certain speed (ADVF) and it must be sure that paper has been inserted.

The sensor is switched by an adjusted current (4 control steps). If the signal EMIT-H does not reach the nominal value via the analog port of the processor PCB, the current is increased. If the nominal value is still not reached in the fourth step, the error message `91.00 MOTIONCLOCK-SENSOR ERROR` is set.

Nominal value	without paper	> 3.5V	if < 2.5V is measured in
Signal EMIT-H	with paper	< 1.5V	the last step ⇒ error message

Possible Error Causes

- Sensor dirty or defective
- Mirror dirty or defective
- Motion clock sensor defective or misadjusted
- Pin cover misadjusted
- Line error (short circuit, line breakage, or contact error)
- Controller PCB PDM** defective
- Connector PCB PDW** defective
- Belt at paper transport motor defective

93.00 HV-Error Bias Voltage: Bias Overvoltage

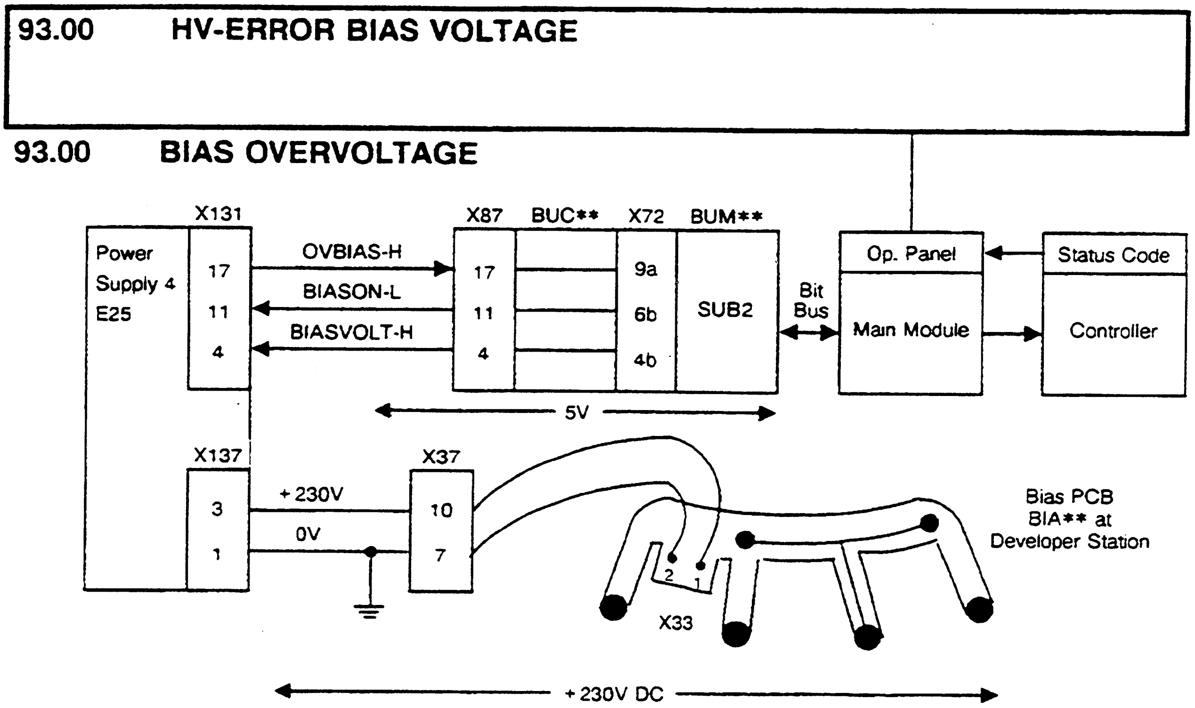

93.00 HV-ERROR BIAS VOLTAGE
93.00 BIAS OVERVOLTAGE
X131
Power
Supply 4
E25
17
11
4
OVBIAS-H
BIASON-L
BIASVOLT-H
X87
17
11
4
BUC**
X72
9a
6b
4b
BUM**
SUB2
Bit
Bus
Op. Panel
Main Module
Status Code
Controller
5V
X137
3
1
+230V
0V
X37
10
7
2
1
X33
Bias PCB
BIA** at
Developer Station
+230V DC

Figure 3-148. 93.00 HV-Error Bias Voltage: Bias Overvoltage

Error Byte: 09/04

Bias Voltage Too High

After command SWON, submodule 2 switches on all units required for printing. After approximately 5 seconds, the high voltage (HV) monitoring is activated. If a line breakage or a defective plug occurs, error message `93.00 HV-ERROR BIAS VOLTAGE` is set. This message causes System Restart Required in either case; the printer does not stop with correct forms position. Bias voltage: +230V DC.

Possible Error Causes

- Line error (line breakage, contact error)
- Bias PCB at developer station defective
- Power supply defective
- Controller PCB BUM** defective
- Connector PCB BUC** defective

93.01 HV-Error Bias Voltage: Bias Undervoltage

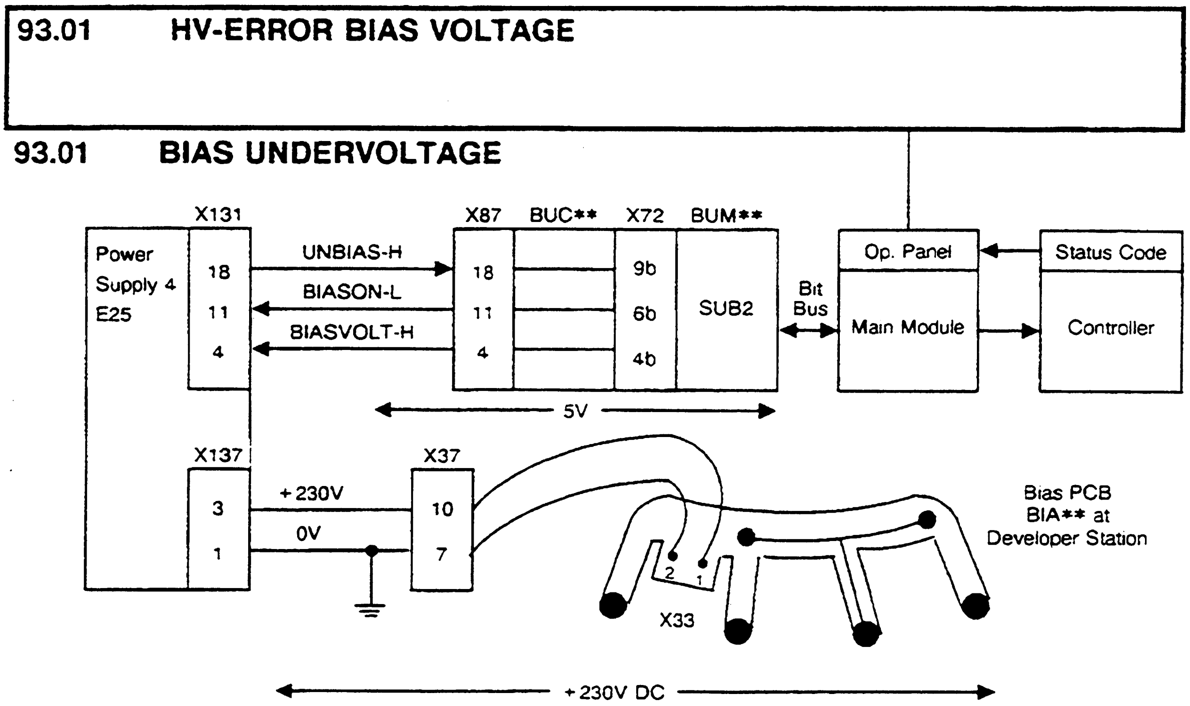

93.01 HV-ERROR BIAS VOLTAGE
93.01 BIAS UNDERVOLTAGE
X131
X87
BUC**
X72
BUM**
Power Supply 4 E25
18
11
4
UNBIAS-H
BIASON-L
BIASVOLT-H
18
11
4
9b
6b
4b
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V
X137
X37
+230V
0V
3
1
10
7
2
1
X33
Bias PCB BIA** at Developer Station
+230V DC

Figure 3-149. 93.01 HV-Error Bias Voltage: Bias Undervoltage

Error Byte: 09/08

Bias Voltage Too Low

After the command SWON, submodule 2 switches on all units required for printing. After approximately 5 seconds the HV monitoring is activated. If a short circuit occurs in the line or in the developer station, error message `93.01 HV-ERROR BIAS VOLTAGE` is set. This message causes System Restart Required in either case; the printer does not stop with correct forms position. Bias voltage: +230V DC.

If the printout is too light, measure the resistance between the developer station and ground; nominal value is a minimum of 600 kΩ. If this value is not attained, the complete area around the developer station must be cleaned.

Possible Error Causes

- Line error (short circuit)
- Bias PCB at developer station defective
- Short circuit of developer station to grounded printer housing (spark-over) caused by:
  - ☐ defective PCD
  - ☐ developer mixture accumulation
- Power supply defective
- Controller PCB BUM** defective
- Connector PCB BUC** defective

94.00 HV-Error Transfer Corotron: Overvoltage

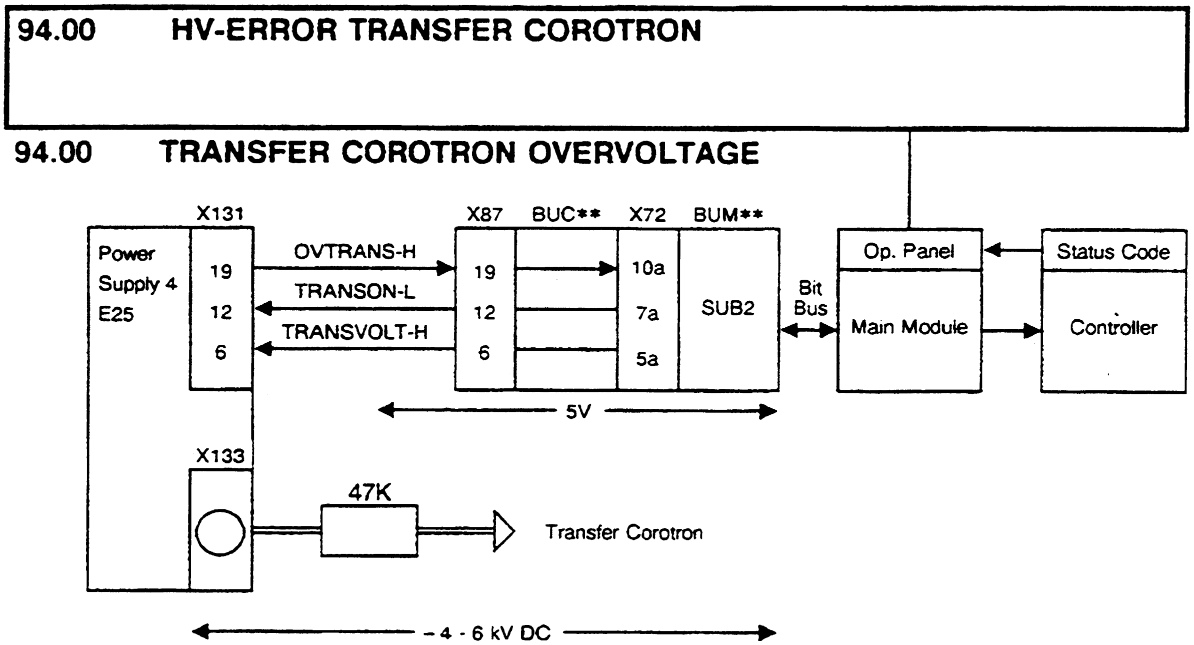

94.00 HV-ERROR TRANSFER COROTRON
94.00 TRANSFER COROTRON OVERVOLTAGE
X131
X87
BUC**
X72
BUM**
Power Supply 4 E25
19
12
6
OVTRANS-H
TRANSON-L
TRANSVOLT-H
19
12
6
10a
7a
5a
SUB2
Bit Bus
Op. Panel
Status Code
Main Module
Controller
5V
X133
47K
Transfer Corotron
- 4 - 6 kV DC

Figure 3-150. 94.00 HV-Error Transfer Corotron: Overvoltage

Error Byte: 09/10

Transfer Corotron Voltage Too High

After the command SWON, submodule 2 switches on all units required for printing. After approximately 5 seconds, the HV monitoring is activated. If a line breakage or a defective plug occurs, error message `94.00 HV-ERROR TRANSFER COROTRON` is set. This message causes System Restart Required in either case; the printer stops with correct forms position. Transfer corotron voltage: - 4 - 6 kV DC.

In case of high voltage spark-overs to grounded printer housing, several error bytes may be set. Therefore, in case of high voltage errors, see the error bytes in OP menu under 2.3 and check all high voltage lines.

Possible Error Causes

- Line error (line breakage, contact error)
- Transfer corotron wire torn
- Power supply defective
- Controller PCB BUM** defective
- Connector PCB BUC** defective

94.01 HV-Error Transfer Corotron: Undervoltage

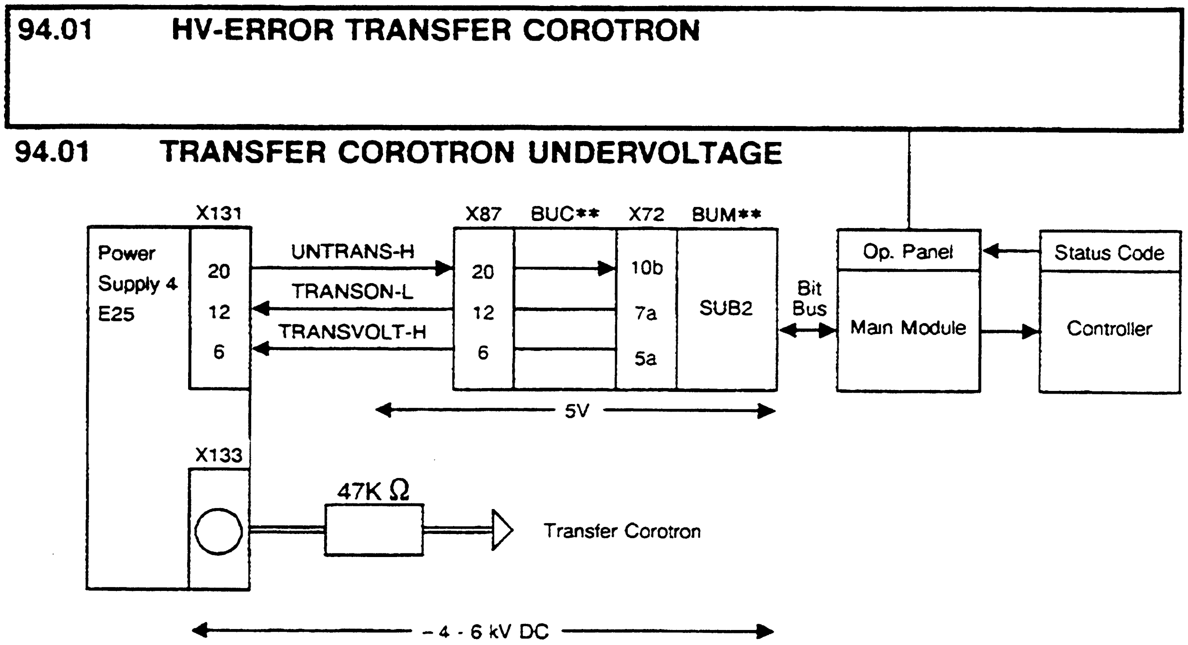

94.01 HV-ERROR TRANSFER COROTRON
94.01 TRANSFER COROTRON UNDERVOLTAGE
X131
X87
BUC**
X72
BUM**
Power Supply 4 E25
20
12
6
UNTRANS-H
TRANSON-L
TRANSVOLT-H
20
12
6
10b
7a
5a
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V
X133
47K Ω
Transfer Corotron
- 4 - 6 kV DC

Figure 3-151. 94.01 HV-Error Transfer Corotron: Undervoltage

Error Byte: 09/20

Transfer Corotron Voltage Too Low

After the command SWON, submodule 2 switches on all units required for printing. After approximately 5 seconds, the HV monitoring is activated. If a short circuit occurs in the line, error message `94.01 HV-ERROR TRANSFER COROTRON` is set. This message causes System Restart Required; the printer stops with correct forms position. Transfer corotron voltage: - 4 - 6 kV DC.

In case of high voltage spark-overs to grounded printer housing, several error bytes may be set. Therefore, in case of high voltage errors, see the error bytes in OP menu under 2.3 and check all high voltage lines.

Possible Error Causes

- Line error (short circuit)
- Transfer corotron wire torn
- Forbidden conducting connection from transfer corotron to grounded printer housing (spark-over)
- Transfer corotron area dirty
- Power supply defective
- Controller PCB BUM** defective
- Connector PCB BUC** defective

95.00 HV-Error Discharge Corotron: Overvoltage

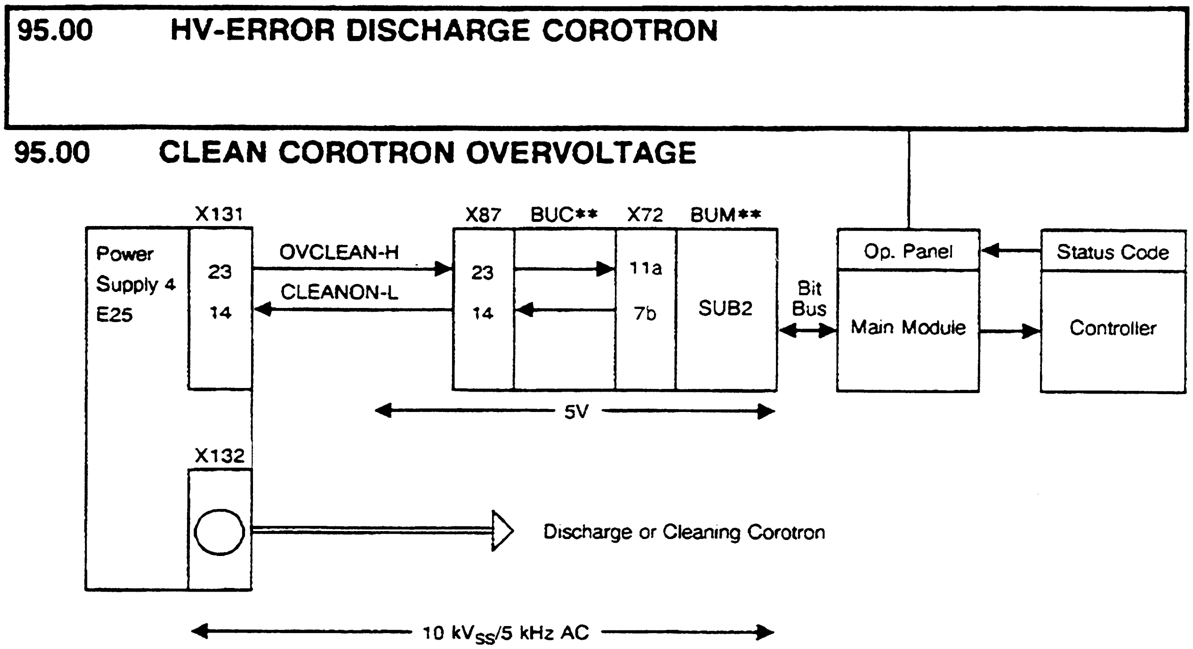

95.00 HV-ERROR DISCHARGE COROTRON
95.00 CLEAN COROTRON OVERVOLTAGE
X131
X87
BUC**
X72
BUM**
Power Supply 4 E25
23
14
OVCLEAN-H
CLEANON-L
23
14
11a
7b
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V
X132
Discharge or Cleaning Corotron
10 kVSS/5 kHz AC

Figure 3-152. 95.00 HV-Error Discharge Corotron: Clean Corotron Overvoltage

Error Byte: 09/40

Cleaning Corotron Voltage Too High

After the command SWON, submodule 2 switches on all units required for printing. After approximately 5 seconds, the HV monitoring is activated. If a line breakage or a defective plug occurs, error message `95.00 HV-ERROR DISCHARGE COROTRON` is set. This message causes System Restart Required in either case; the printer does not stop with correct forms position. Cleaning corotron voltage: $10kV_{SS}/5$ kHz.

In case of high voltage spark-overs to grounded printer housing, several error bytes may be set. Therefore, in case of high voltage errors, see the error bytes in OP menu under 2.3 and check all high voltage lines.

Possible Error Causes

- Line error (line breakage, contact error)
- Cleaning corotron wire torn
- Power supply defective
- Controller PCB BUM** defective
- Connector PCB BUC** defective

95.01 HV-Error Discharge Corotron: Undervoltage

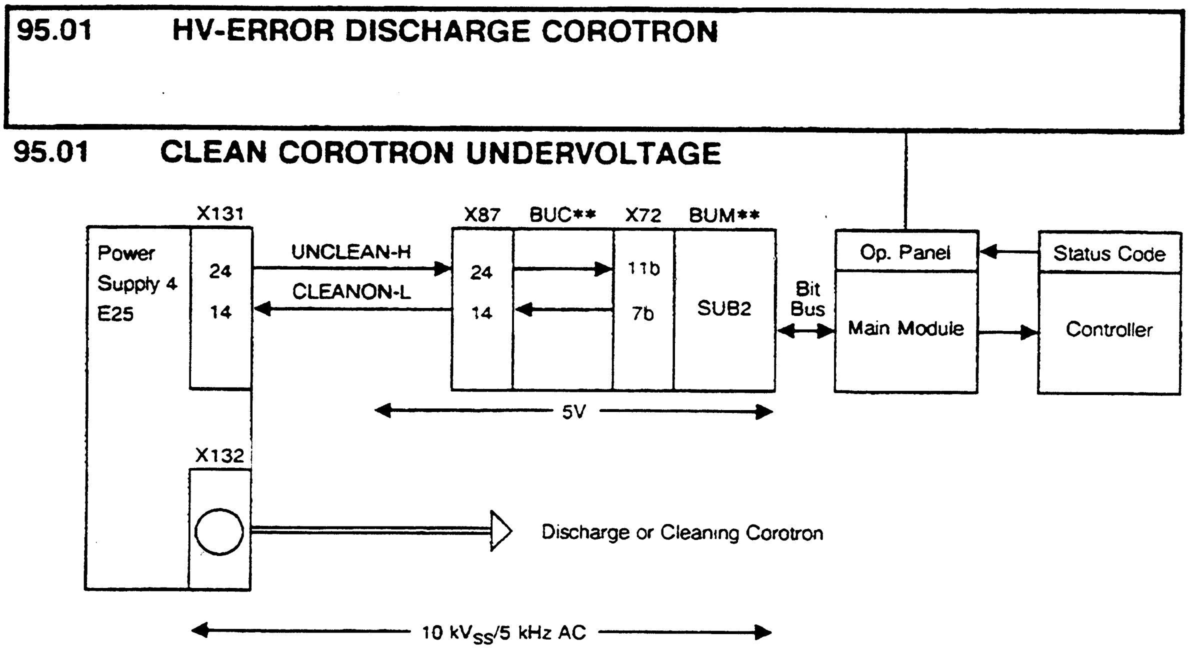

95.01 HV-ERROR DISCHARGE COROTRON
95.01 CLEAN COROTRON UNDERVOLTAGE
X131
X87
BUC**
X72
BUM**
Power Supply 4 E25
24
14
UNCLEAN-H
CLEANON-L
24
14
11b
7b
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V
X132
Discharge or Cleaning Corotron
10 kV$_{SS}$/5 kHz AC

Figure 3-153. 95.01 HV-Error Discharge Corotron: Clean Corotron Undervoltage

Error Byte: 09/80

Cleaning Corotron Voltage Too Low

After the command SWON, submodule 2 switches on all units required for printing. After approximately 5 seconds, the HV monitoring is activated. If a short circuit occurs in the line, error message `95.01 HV-ERROR DISCHARGE COROTRON` is set. This message causes System Restart Required; the printer does not stop with correct forms position. Cleaning corotron voltage: 10kV$_{SS}$/5 kHz.

In case of high voltage spark-overs to grounded printer housing, several error bytes may be set. Therefore, in case of high voltage errors, see the error bytes in OP menu under 2.3 and check all high voltage lines.

Possible Error Causes

- Line error (short circuit)
- Cleaning corotron wire torn
- Forbidden conducting connection from cleaning corotron to grounded printer housing (spark-over)
- Cleaning corotron area dirty
- Power supply defective
- Controller PCB BUM** defective
- Connector PCB BUC** defective

96.00 HV-Error Charge Corotron: Charge Corotron Overvoltage

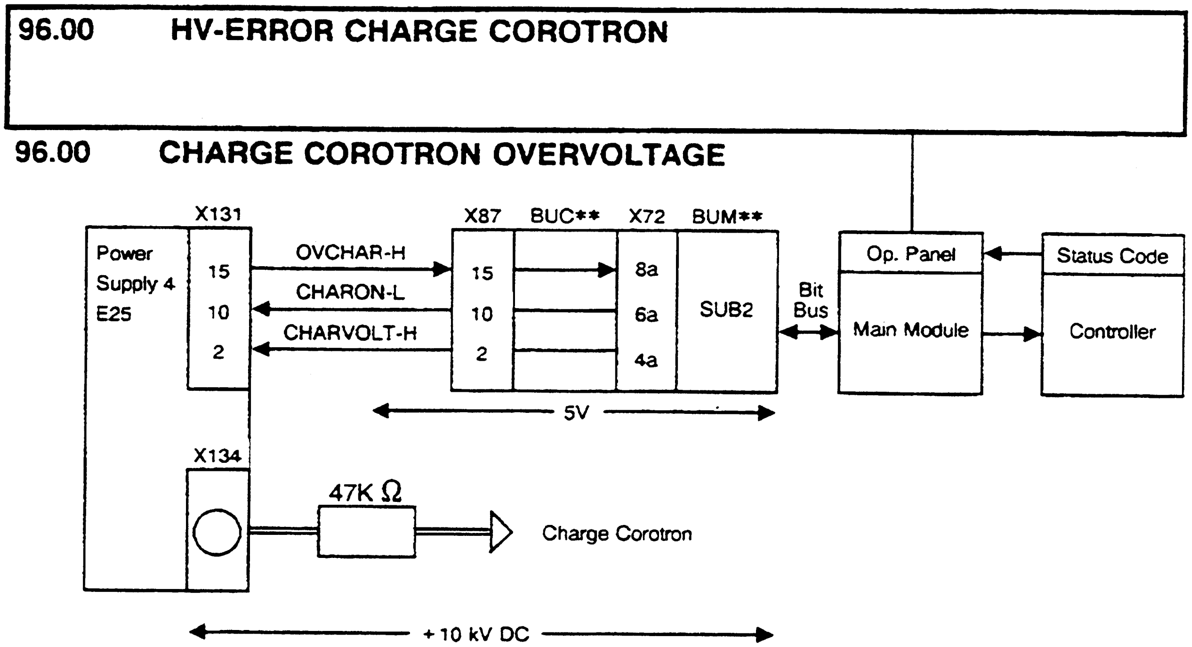

96.00 HV-ERROR CHARGE COROTRON
96.00 CHARGE COROTRON OVERVOLTAGE
X131
X87
BUC**
X72
BUM**
Power Supply 4 E25
15
10
2
OVCHAR-H
CHARON-L
CHARVOLT-H
15
10
2
8a
6a
4a
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V
X134
47K Ω
Charge Corotron
+10 kV DC

Figure 3-154. 96.00 HV-Error Charge Corotron: Charge Corotron Overvoltage

Error Byte: 09/01

Charge Corotron Voltage Too High

After the command SWON, submodule 2 switches on all units required for printing. After approximately 5 seconds, the HV monitoring is activated. If a line breakage or a defective plug occurs, error message `96.00 HV-ERROR CHARGE COROTRON` is set. This message causes System Restart Required in either case; the printer does not stop with correct forms position. Charge corotron voltage: +10 kV DC.

In case of high voltage spark-overs to grounded printer housing, several error bytes may be set. Therefore, in case of high voltage errors, see the error bytes in OP menu under 2.3 and check all high voltage lines.

Possible Error Causes

- Line error (line breakage, contact error)
- Charge corotron wire torn
- Power supply defective
- Controller PCB BUM** defective
- Connector PCB BUC** defective

96.01 HV-Error Charge Corotron: Charge Corotron Undervoltage

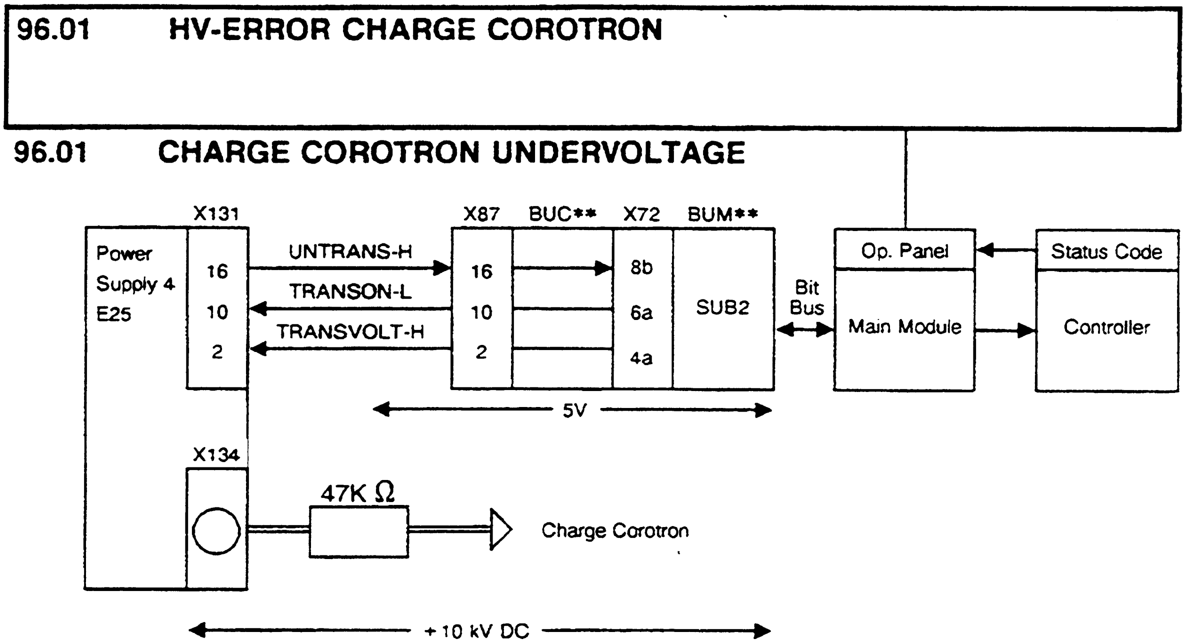

96.01 HV-ERROR CHARGE COROTRON
96.01 CHARGE COROTRON UNDERVOLTAGE
X131
X87
BUC**
X72
BUM**
Power Supply 4 E25
16
10
2
UNTRANS-H
TRANSON-L
TRANSVOLT-H
16
10
2
8b
6a
4a
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V
X134
47K Ω
Charge Corotron
+10 kV DC

Figure 3-155. 96.01 HV-Error Charge Corotron: Charge Corotron Undervoltage

Error Byte: 09/02

Charge Corotron Voltage Too Low

After the command SWON, submodule 2 switches on all units required for printing. After approximately 5 seconds, the HV monitoring is activated. If a short circuit occurs in the line, error message `96.01 HV-ERROR CHARGE COROTRON` is set. This message causes System Restart Required; the printer does not stop with correct forms position. Charge corotron voltage: +10 kV DC.

In case of high voltage spark-overs to grounded printer housing, several error bytes may be set. Therefore, in case of high voltage errors, see the error bytes in OP menu under 2.3 and check all high voltage lines.

Possible Error Causes

- Line error (short circuit)
- Charge corotron wire torn
- Forbidden conducting connection from charge corotron to grounded printer housing (spark-over)
- Charge corotron area dirty
- Power supply defective
- Controller PCB BUM** defective
- Connector PCB BUC** defective

97.00 Discharge Lights Error: Red LED-Light Not Shining

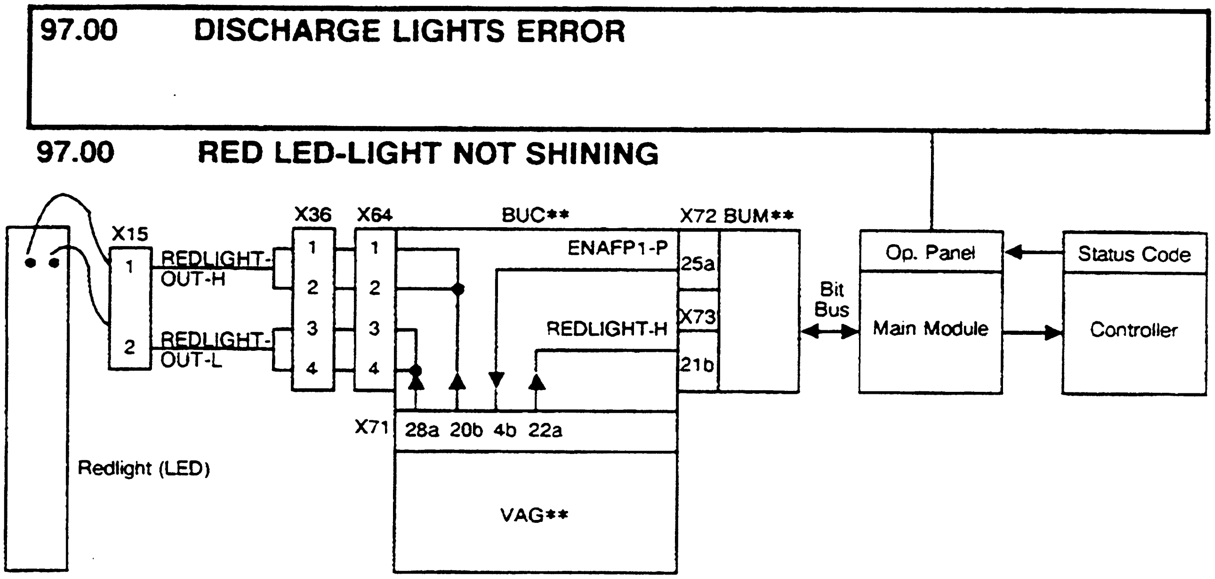

97.00 DISCHARGE LIGHTS ERROR
97.00 RED LED-LIGHT NOT SHINING
X15
1
2
REDLIGHT-OUT-H
REDLIGHT-OUT-L
X36
X64
1
2
3
4
BUC**
ENAFP1-P
REDLIGHT-H
X72 BUM**
25a
X73
21b
X71
28a 20b 4b 22a
VAG**
Redlight (LED)
Bit Bus
Op. Panel
Main Module
Status Code
Controller

Figure 3-156. 97.00 Discharge Lights Error: Red LED-Light Not Shining

Error Byte: 15/01

No Current at Redlight Insert in Developer Station

The redlight is activated with signal ENAFP1-P and signal REDLIGHT-H is evaluated. REDLIGHT-H provides information about the current flowing through the redlight (nominal value approximately 150 mA). An error is set if the redlight is activated and controller PCB BUM** detects no current.

Redlight on:	REDLIGHTOUT-H	=	7.5V	Redlight off:	REDLIGHTOUT-H	=	0V
	REDLIGHTOUT-L	=	0V		REDLIGHTOUT-L	=	0V
	ENAFP1-P	=	5V		ENAFP1-P	=	0V
	REDLIGHT-H	=	400 - 500 mV		REDLIGHT-H	=	200 mV

Possible Error Causes

- Line error (line breakage, contact error)
- Redlight not connected
- Redlight insert defective
- Power supply PCB VAG** defective
- Controller PCB BUM** defective
- Connector PCB BUC** defective
- 24V lacking

97.01 Discharge Lights Error: Green LED-Light Not Shining

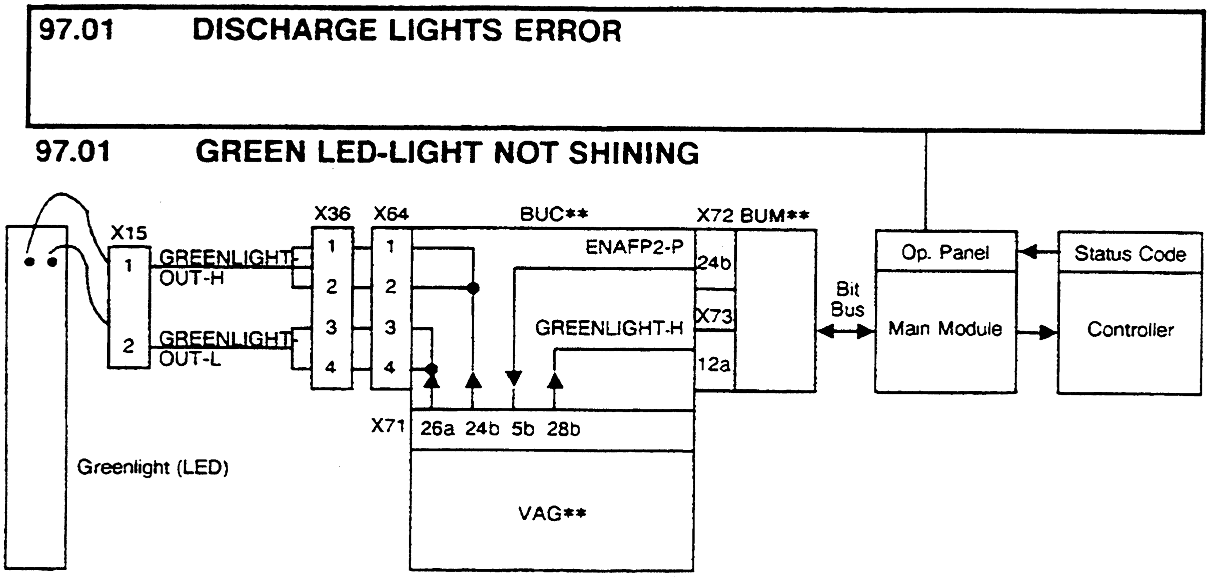

97.01 DISCHARGE LIGHTS ERROR
97.01 GREEN LED-LIGHT NOT SHINING
X15
1
2
GREENLIGHT OUT-H
GREENLIGHT OUT-L
X36
X64
1
2
3
4
BUC**
ENAFP2-P
GREENLIGHT-H
X72 BUM**
24b
X73
12a
X71
26a 24b 5b 28b
VAG**
Greenlight (LED)
Bit Bus
Op. Panel
Main Module
Status Code
Controller

Figure 3-157. 97.01 Discharge Lights Error: Green LED-Light Not Shining

Error Byte: 15/02

No Current at Greenlight Insert in Developer Station

The greenlight is activated with signal ENAFP2-P and signal GREENLIGHT-H is evaluated. GREENLIGHT-H provides information about the current flowing through the greenlight (nominal value approximately 300 mA).

An error is set if the greenlight is activated and controller PCB BUM** detects no current.

Greenlight on: GREENLIGHTOUT-H = 8.5V Greenlight off: GREENLIGHTOUT-H = 0V
GREENLIGHTOUT-L = 0V GREENLIGHTOUT-L = 0V
ENAFP2-P = 5V ENAFP2-P = 0V
GREENLIGHT-H = 2V GREENLIGHT-H = 0V

Possible Error Causes

- Line error (line breakage, contact error)
- Greenlight not connected
- Greenlight insert defective
- Power supply PCB VAG** defective
- Controller PCB BUM** defective
- Connector PCB BUC** defective
- 24V lacking

97.03 Discharge Lights Error: Greenlight Error

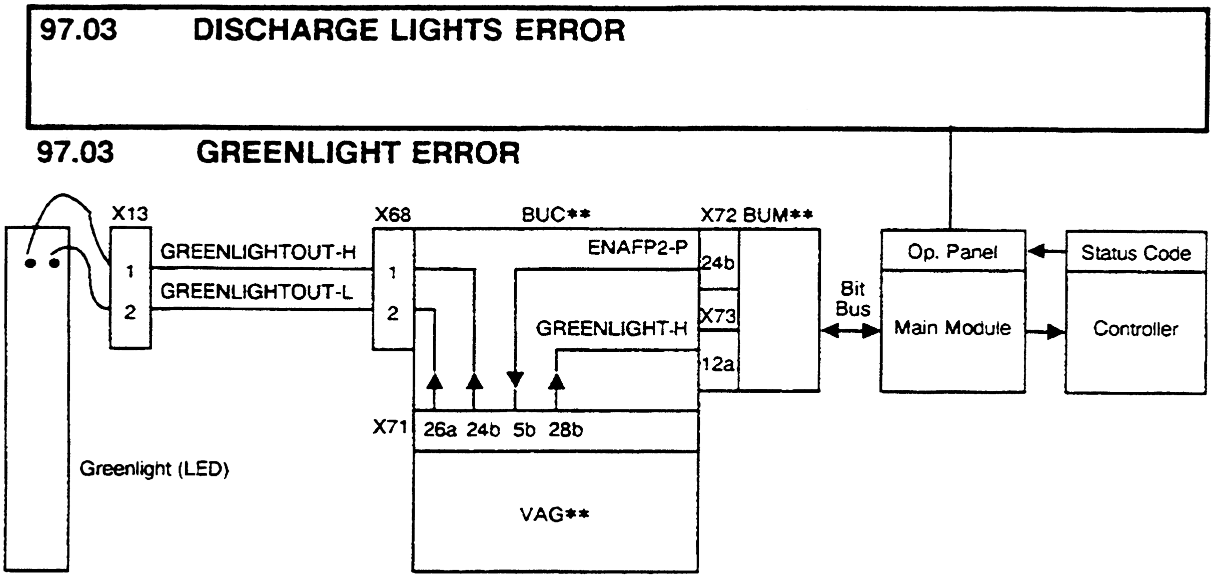

97.03 DISCHARGE LIGHTS ERROR
97.03 GREENLIGHT ERROR
X13
X68
BUC**
X72 BUM**
GREENLIGHTOUT-H
GREENLIGHTOUT-L
1
2
1
2
ENAFP2-P
24b
X73
12a
GREENLIGHT-H
Bit Bus
Op. Panel
Main Module
Status Code
Controller
X71
26a 24b 5b 28b
Greenlight (LED)
VAG**

Figure 3-158. 97.03 Discharge Lights Error: Greenlight Error

Error Byte: 15/08

Greenlight Current Too High

The greenlight is activated with signal ENAFP2-P and signal GREENLIGHT-H is evaluated. GREENLIGHT-H provides information about the current flowing through the greenlight (nominal value approximately 300 mA). During preparation, the quiescent current is measured, that is, the greenlight is not activated and the controller PCB BUM** therefore detects no current.

After measurement, the greenlight is activated and the controller PCB BUM ** must detect a current of approximately 300 mA. An error is set when

- a current is detected during quiescent measurement
- a current of more than 350 mA is detected when greenlight is activated.

Greenlight on:	GREENLIGHTOUT-H	=	8.5V	Greenlight off:	GREENLIGHTOUT-H	=	0V
	GREENLIGHTOUT-L	=	0V		GREENLIGHTOUT-L	=	0V
	ENAFP2-P	=	5V		ENAFP2-P	=	0V
	GREENLIGHT-H	=	2V		GREENLIGHT-H	=	0V

Possible Error Causes

- Line error (line breakage, contact error)
- Short-circuit
- Power supply PCB VAG** defective
- Controller PCB BUM** defective
- Connector PCB BUC** defective
- 24V lacking

97.04 Discharge Lights Error: Redlight Error

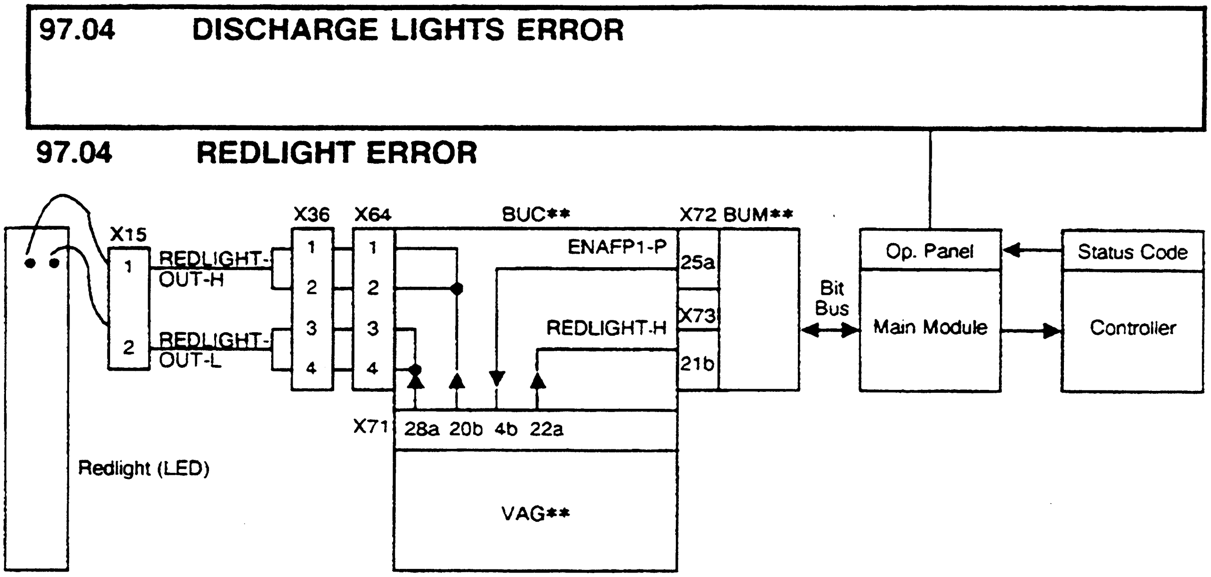

97.04 DISCHARGE LIGHTS ERROR
97.04 REDLIGHT ERROR
X15
1
2
REDLIGHT-OUT-H
REDLIGHT-OUT-L
X36
X64
1
2
3
4
BUC**
ENAFP1-P
REDLIGHT-H
X72 BUM**
25a
X73
21b
X71
28a 20b 4b 22a
VAG**
Redlight (LED)
Bit Bus
Op. Panel
Main Module
Status Code
Controller

Figure 3-159. 97.04 Discharge Lights Error: Redlight Error

Error Byte: 15/10

Redlight Current Too High

The redlight is activated with signal ENAFP1-P and signal REDLIGHT-H is evaluated. REDLIGHT-H provides information about the current flowing through the redlight (nominal value approximately 150 mA). During preparation, the quiescent current is measured, that is, the redlight is not activated and the controller PCB BUM** therefore detects no current.

After measurement, the redlight is activated and the controller PCB BUM** must detect a current of approximately 300 mA. An error is set when

- a current is detected during quiescent measurement
- a current of more than 170 mA is detected when redlight is activated.

Redlight on:	REDLIGHTOUT-H	=	7.5V	Redlight off:	REDLIGHTOUT-H	=	0V
	REDLIGHTOUT-L	=	0V		REDLIGHTOUT-L	=	0V
	ENAFP1-P	=	5V		ENAFP1-P	=	0V
	REDLIGHT-H	=	400 - 500 mV		REDLIGHT-H	=	200 mV

Possible Error Causes

- Line error (line breakage, contact error)
- Short-circuit
- Power supply PCB VAG** defective
- Controller PCB BUM** defective
- Connector PCB BUC** defective
- 24V lacking

99.00 Tonermark Sensor Defect: Dark Value Too High

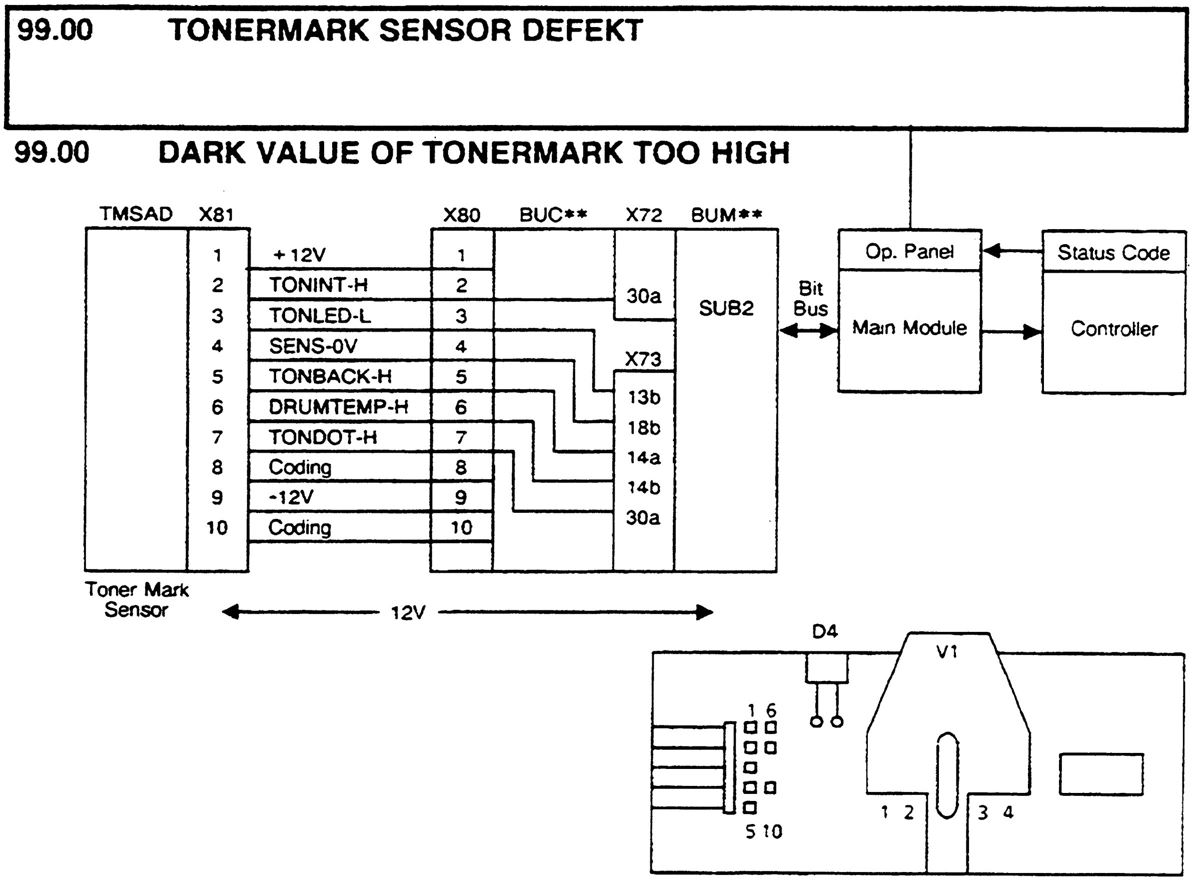

99.00 TONERMARK SENSOR DEFEKT
99.00 DARK VALUE OF TONERMARK TOO HIGH
TMSAD
X81
X80
BUC**
X72
BUM**
1 +12V 1
2 TONINT-H 2
3 TONLED-L 3
4 SENS-0V 4
5 TONBACK-H 5
6 DRUMTEMP-H 6
7 TONDOT-H 7
8 Coding 8
9 -12V 9
10 Coding 10
30a
X73
13b
18b
14a
14b
30a
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Toner Mark Sensor
12V
D4
V1
1 6
5 10
1 2
3 4

Figure 3-160. 99.00 Tonermark Sensor Defect: Dark Value of Tonermark Too High

Error Byte: 13/10

Functional Monitoring of Toner Mark Sensor

During preparation, submodule 2 carries out a dark value measurement of the toner mark sensor. This means PCB TMSAD may not send an output signal to the analog port of processor PCB submodule 2. If the voltage is not 0, error message `99.00 TONERMARK SENSOR DEFECT` is set.

Possible Error Causes

- Incidence of light on PCB TMSAD
- PCB TMSAD defective
- Controller PCB BUM** defective

99.01 Tonermark Sensor Defect: Current Too High

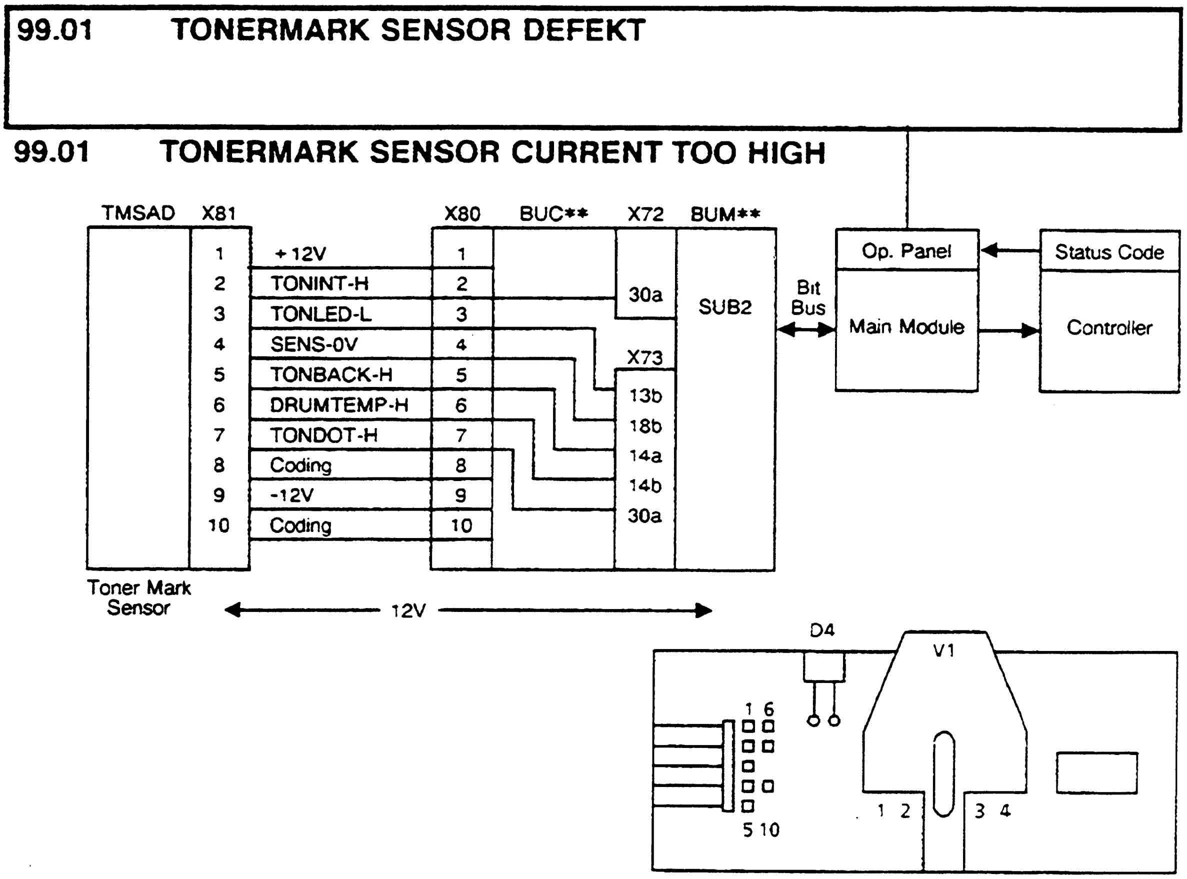

99.01 TONERMARK SENSOR DEFEKT
99.01 TONERMARK SENSOR CURRENT TOO HIGH
TMSAD
X81
X80
BUC**
X72
BUM**
1
2
3
4
5
6
7
8
9
10
+12V
TONINT-H
TONLED-L
SENS-0V
TONBACK-H
DRUMTEMP-H
TONDOT-H
Coding
-12V
Coding
30a
SUB2
X73
13b
18b
14a
14b
30a
Bit Bus
Op. Panel
Status Code
Main Module
Controller
Toner Mark Sensor
12V
D4
V1
1 6
5 10
1 2
3 4

Figure 3-161. 99.01 Tonermark Sensor Defect: Tonermark Sensor Current Too High

Error Byte: 14/20

Toner Mark Sensor Current Too high

During run-up phase, the toner mark sensor is calibrated at print start. The toner mark sensor consists of an infrared light barrier with evaluation logics. The LED current can be controlled exactly. The photo transistor measures the amount of light reflected by the drum; the value is sent to the analog port of the processor of submodule 2.

If the adjusted LED current reaches the maximum value of 35 mA without measurement of a sufficient reflection signal, the error message `99.01 TONERMARK SENSOR DEFECT` is set.

Possible Error Causes

- No drum mounted
- Drum defective or dirty in sensor area
- Line or plug defective

9A.00 Background Too High

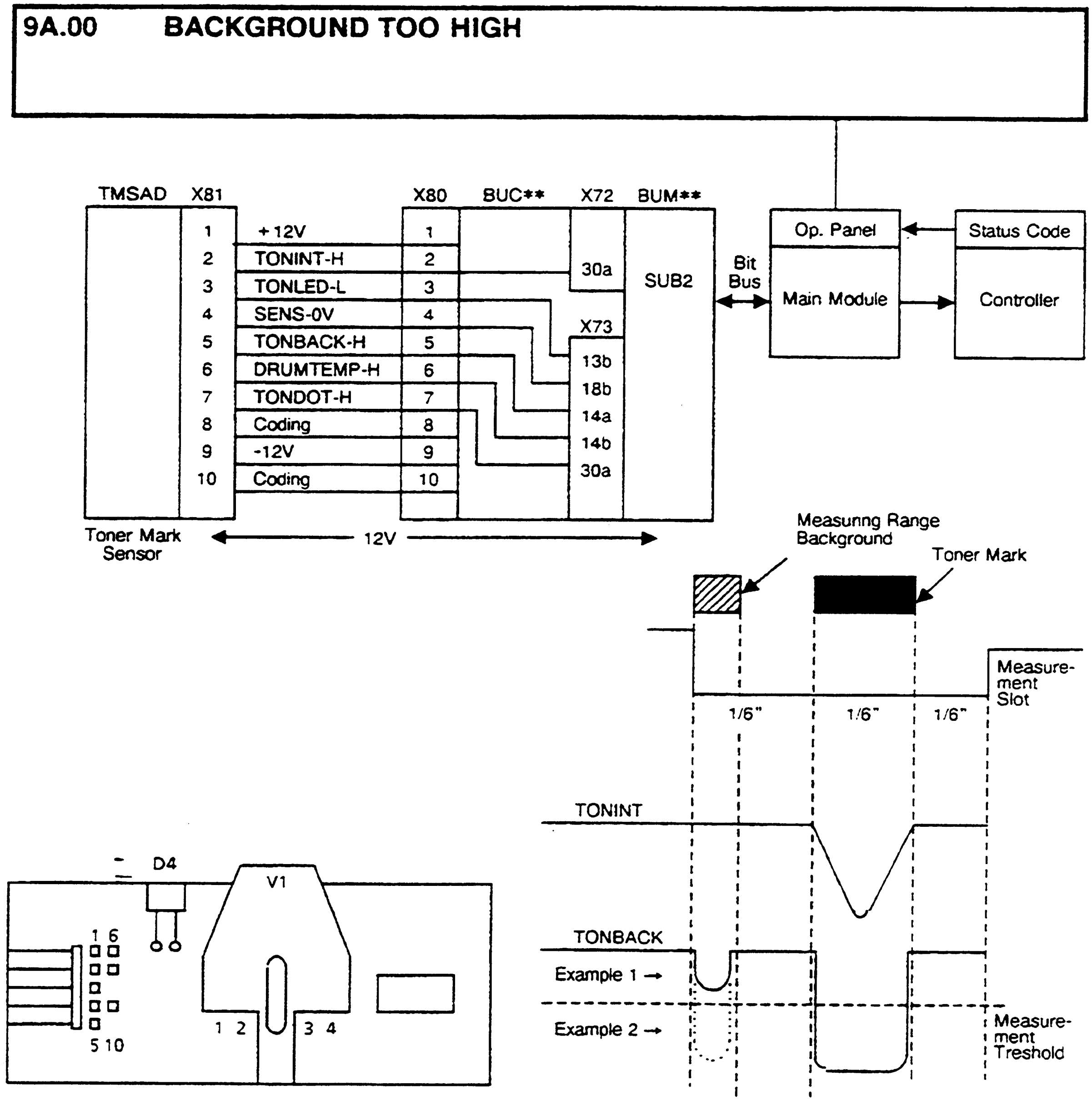

9A.00
BACKGROUND TOO HIGH
TMSAD
X81
X80
BUC**
X72
BUM**
1
2
3
4
5
6
7
8
9
10
+12V
TONINT-H
TONLED-L
SENS-0V
TONBACK-H
DRUMTEMP-H
TONDOT-H
Coding
-12V
Coding
30a
X73
13b
18b
14a
14b
30a
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Toner Mark Sensor
12V
Measuring Range Background
Toner Mark
Measure-ment Slot
1/6"
1/6"
1/6"
TONINT
TONBACK
Example 1 →
Example 2 →
Measure-ment Treshold
D4
V1
1 6
5 10
1 2
3 4

Figure 3-162. 9A.00 Background Too High

Error Byte: 15/04

Background on PCD Too High

Background measurement is performed in the measurement slot of 3-by-1/6-inch size before the toner mark measurement; signal TONBACK-H enables a more precise evaluation of the PCD background than signal TONINT-H.

An error is set when signal TONBACK-H is below the measurement threshold value (see example 2). Example 1 shows a lighter background. The following measurement of the toner mark effects a maximum below the measurement threshold value and is thus evaluated for toner mark detection (see 6D.00 TONERMARK NOT DETECTED).

Possible Error Causes

- Line error (short circuit, line breakage, or contact error)
- Toner mark sensor defective or dirty
- PCD defective or dirty
- Connector PCB BUC** defective
- Controller PCB BUM** defective
- Check electrophotography and print mechanics (bias voltage, corotrons (voltage/current), developer station, redlight, greenlight, cleaning brush)

9B.00 Charge Regulation Error: Charge Sensor Defect

9B.00 CHARGE REGULATION ERROR = Status Message

CHARGE SENSOR = Warning (W.10)

9B.00 CHARGE SENSOR DEFEKT

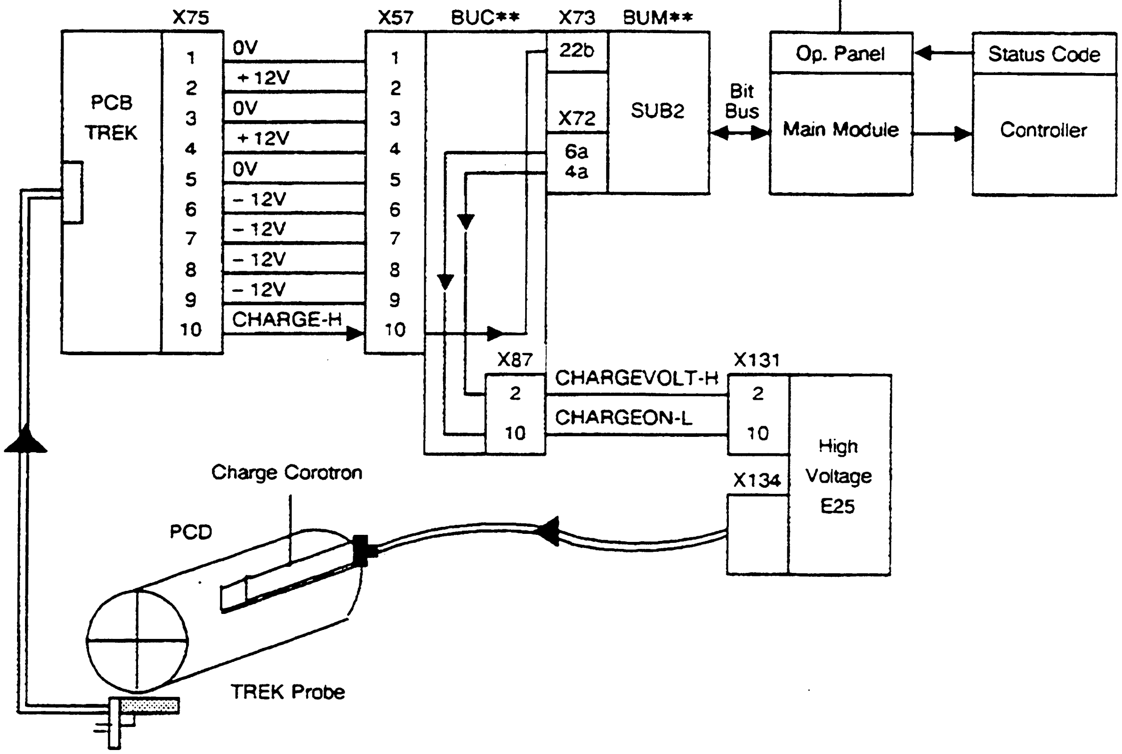

X75
X57
BUC**
X73
BUM**
PCB
TREK
1
2
3
4
5
6
7
8
9
10
0V
+12V
0V
+12V
0V
- 12V
- 12V
- 12V
- 12V
CHARGE-H
22b
X72
6a
4a
SUB2
Bit
Bus
Op. Panel
Main Module
Status Code
Controller
X87
2
10
CHARGEVOLT-H
CHARGEON-L
X131
2
10
High
Voltage
E25
X134
Charge Corotron
PCD
TREK Probe

Figure 3-163. 9B.00 Charge Regulation Error: Charge Sensor Defect

Error Byte: 14/02

Incorrect Measuring Result of TREK Probe

During preparation (the PCD is inactive), the TREK probe measures the voltage on the analog port of the processor on submodule 2 via the TREK PCB. The measured values are between +0V ± 10 mV.

After 5 seconds, a second measurement is carried out. If there is a large difference between these measurements, the error message `9B.00 CHARGE REGULATION ERROR` is set.

Possible Error Causes

- PCD has large residual charge
- TREK PCB not aligned
- TREK probe defective
- TREK PCB defective
- PCD defective

9B.01 Charge Regulation Error: Drum Charge Too Low

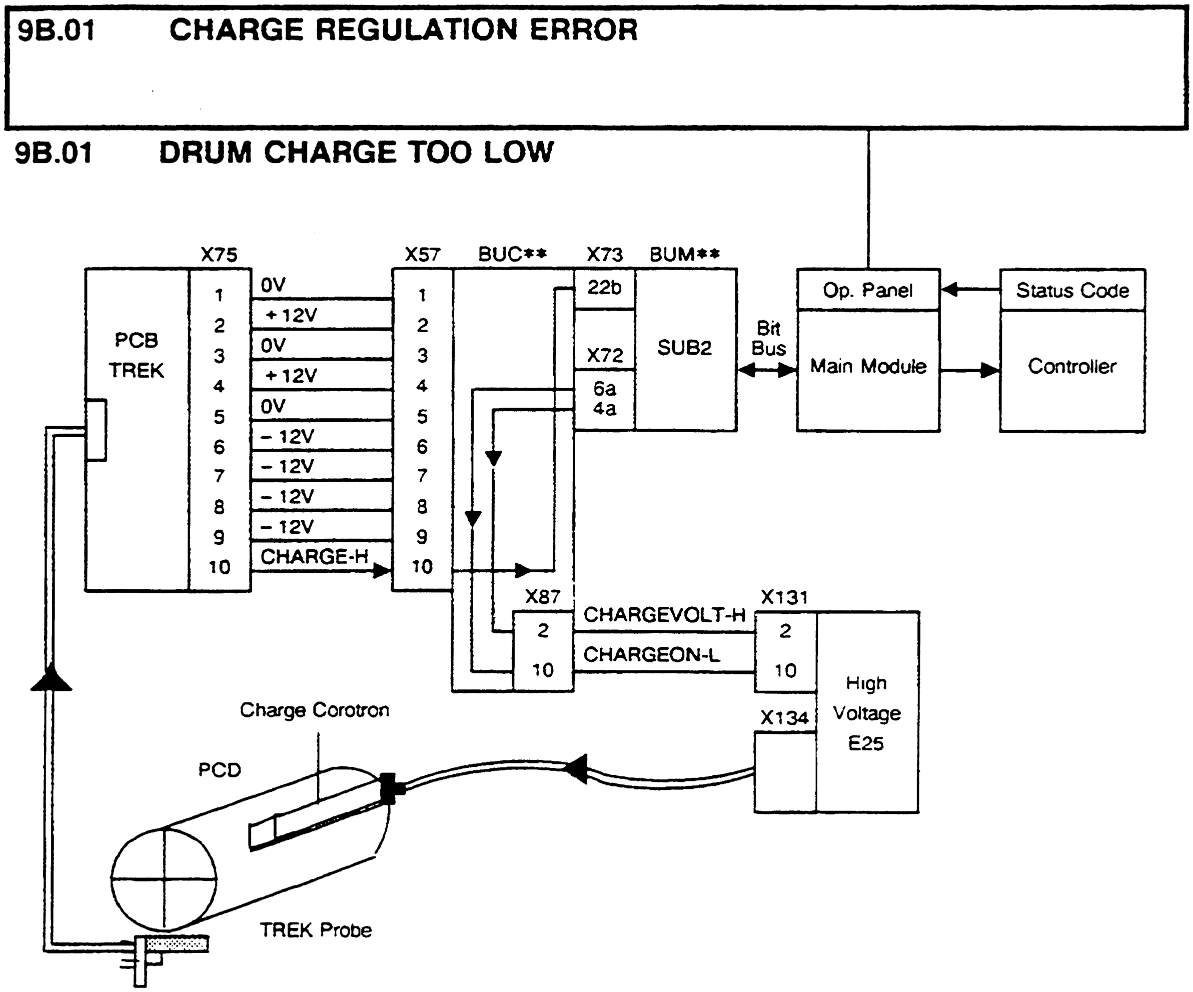

9B.01 CHARGE REGULATION ERROR
9B.01 DRUM CHARGE TOO LOW
X75
X57
BUC**
X73
BUM**
PCB
TREK
1
2
3
4
5
6
7
8
9
10
0V
+12V
0V
+12V
0V
- 12V
- 12V
- 12V
- 12V
CHARGE-H
22b
X72
6a
4a
SUB2
Bit
Bus
Op. Panel
Main Module
Status Code
Controller
X87
2
10
CHARGEVOLT-H
CHARGEON-L
X131
2
10
X134
High
Voltage
E25
Charge Corotron
PCD
TREK Probe

Figure 3-164. 9B.01 Charge Regulation Error: Drum Charge Too Low

Error Byte: 14/04

Drum Charge Too Low

During print operation, the charge voltage is adjusted so that the TREK probe measures a surface voltage of 480 - 500V. The TREK PCB generates the analog signal CHARGE-H, which is evaluated by controller PCB BUM**. CHARGE-H ≈ 1/1000 of the surface voltage (for example, 480V ⇒ CHARGE-H=480mV).

Signal CHARGEON-L switches on the high voltage for the charge corotron; signal CHARGEVOLT-H regulates the high voltage for the charge corotron (0 - 4V).

Error message `9B.01 CHARGE REGULATION ERROR` results when the high voltage power supply is activated with maximum output for more than 1 min. (CHARGEVOLT-H=+4V) and the surface voltage does not exceed 300V (CHARGE-H=300 mV).

Possible Error Causes

- TREK probe defective or dirty
- TREK PCB defective or not aligned
- HV power supply defective
- Controller PCB BUM** defective
- Charge corotron insert defective
- Line error (short circuit, line breakage, or contact error)
- PCD defective

9B.02 Charge Regulation Error: Drum Charge Too High

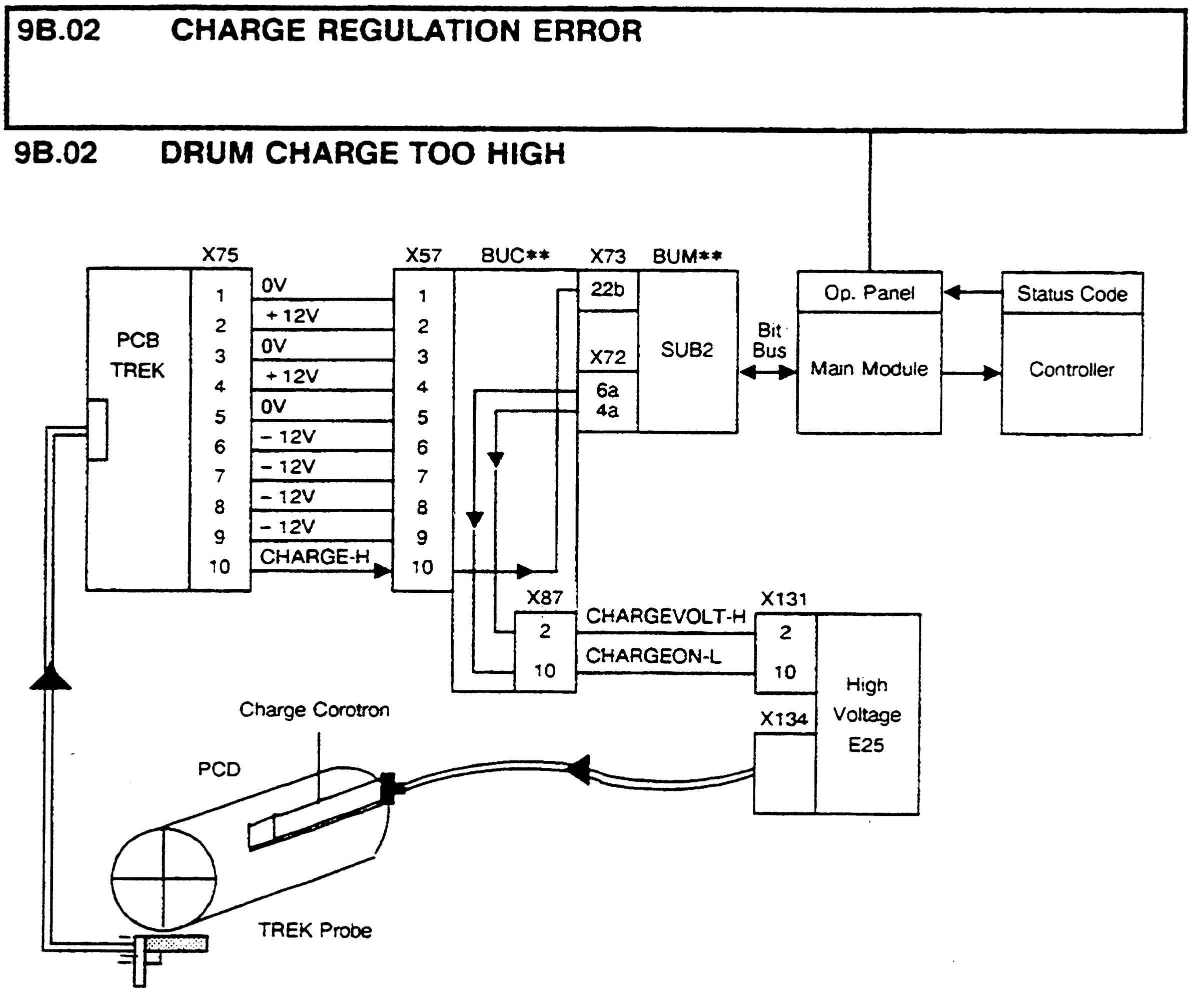

9B.02 CHARGE REGULATION ERROR
9B.02 DRUM CHARGE TOO HIGH
X75
X57
BUC**
X73
BUM**
PCB TREK
1
2
3
4
5
6
7
8
9
10
0V
+12V
0V
+12V
0V
-12V
-12V
-12V
-12V
CHARGE-H
22b
X72
6a
4a
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
X87
2
10
CHARGEVOLT-H
CHARGEON-L
X131
2
10
X134
High Voltage E25
Charge Corotron
PCD
TREK Probe

Figure 3-165. 9B.02 Charge Regulation Error: Drum Charge Too High

Error Byte: 14/08

Drum Charge Too High

During print operation, the charge voltage is adjusted so that the TREK probe measures a surface voltage of 480 - 500V. The TREK PCB generates the analog signal CHARGE-H, which is evaluated by controller PCB BUM**.

CHARGE-H ≈ 1/1000 of the surface voltage (for example, 480V ⇒ CHARGE-H=480mV).

Signal CHARGEON-L switches on the high voltage for the charge corotron; signal CHARGEVOLT-H regulates the high voltage for the charge corotron (0 - 4V).

Error message `9B.02 CHARGE REGULATION ERROR` results when the high voltage power supply is activated with minimum output for more than 1 minute (CHARGEVOLT-H=approximately 0V) and the surface voltage does not drop below 640V (CHARGE-H=640 mV).

Possible Error Causes

- TREK probe defective or dirty
- TREK PCB defective or not aligned
- HV power supply defective
- Controller PCB BUM** defective
- Charge corotron insert defective
- Line error (short circuit, line breakage, or contact error)
- PCD defective

9B.03 Charge Regulation Error: Restpotential Too High

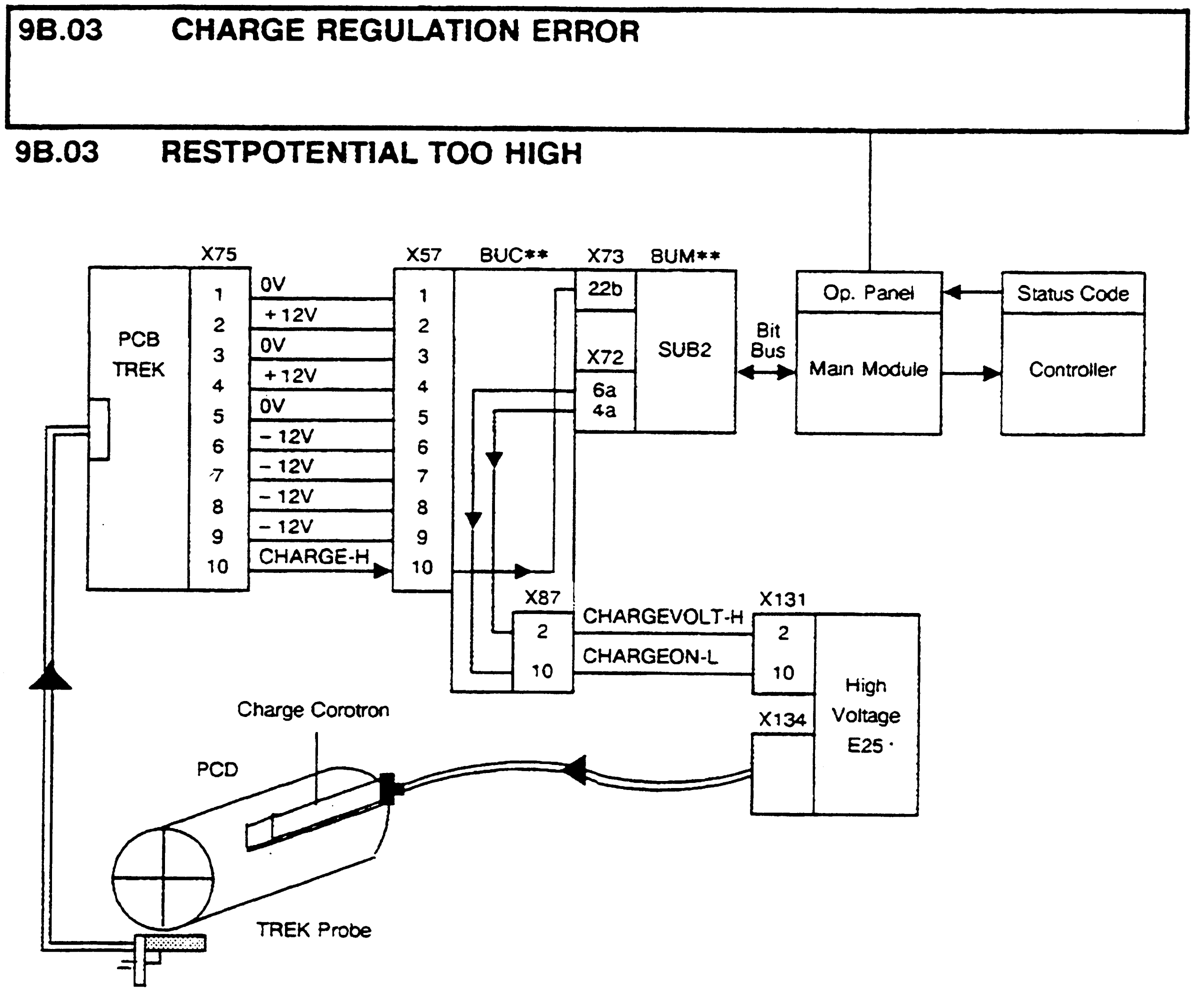

9B.03 CHARGE REGULATION ERROR
9B.03 RESTPOTENTIAL TOO HIGH
X75
X57
BUC**
X73
BUM**
PCB
TREK
1
2
3
4
5
6
7
8
9
10
0V
+12V
0V
+12V
0V
-12V
-12V
-12V
-12V
CHARGE-H
22b
X72
6a
4a
SUB2
Bit
Bus
Op. Panel
Main Module
Status Code
Controller
X87
2
10
CHARGEVOLT-H
CHARGEON-L
X131
2
10
X134
High
Voltage
E25
Charge Corotron
PCD
TREK Probe

Figure 3-166. 9B.03 Charge Regulation Error: Restpotential Too High

Error Byte: 13/04 not yet realized

Residual Potential on PCD Too High

9B.04 Charge regulation Error: Charge Regulation Timeout

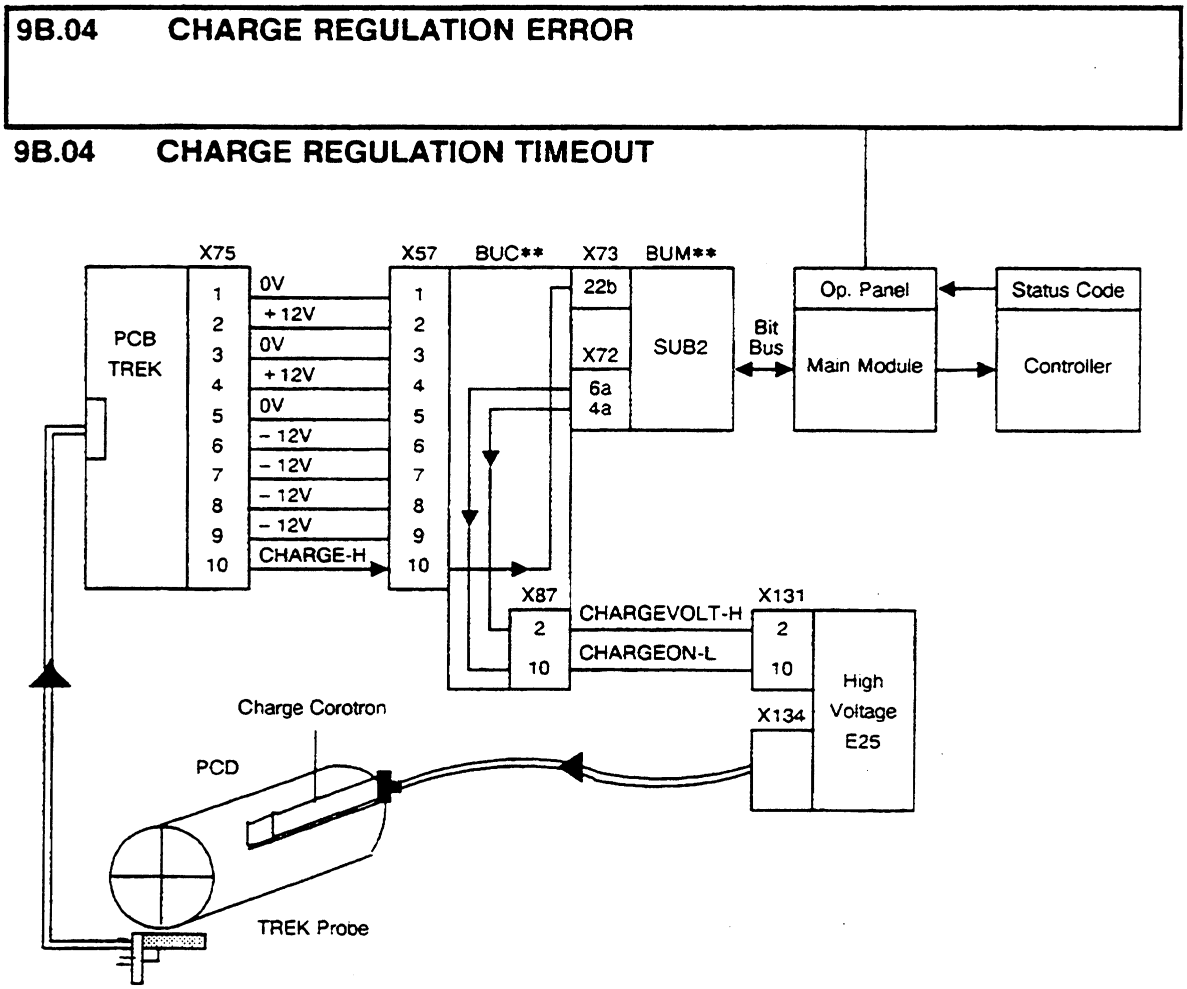

9B.04 CHARGE REGULATION ERROR
9B.04 CHARGE REGULATION TIMEOUT
X75
X57
BUC**
X73
BUM**
PCB
TREK
1
2
3
4
5
6
7
8
9
10
0V
+12V
0V
+12V
0V
-12V
-12V
-12V
-12V
CHARGE-H
1
2
3
4
5
6
7
8
9
10
22b
X72
6a
4a
SUB2
Bit
Bus
Op. Panel
Main Module
Status Code
Controller
X87
2
10
CHARGEVOLT-H
CHARGEON-L
X131
2
10
High
Voltage
E25
X134
Charge Corotron
PCD
TREK Probe

Figure 3-167. 9B.04 Charge regulation Error: Charge Regulation Timeout

Error Byte: 13/40

Charge Regulation Does Not Attain Nominal Value

During run-up phase, a surface voltage of approximately 500V should be attained on the PCD. The charge regulation may extend the run-up phase by up to 30 seconds. When the surface voltage of 500V is not attained after 30 seconds, error message `9B.04 CHARGE REGULATION ERROR` is set.

An extended run-up phase must be expected if

- another PCD has been inserted
- PCD or TREK probe are dirty
- the printer is cold.

CHARGE-H ≈ 1/1000 of the surface voltage (e.g. 500V ⇒CHARGE-H=500mV).

Possible Error Causes

- PCD defective or dirty
- TREK probe defective or dirty
- TREK PCB defective
- HV power supply defective
- Line error (short circuit, line breakage, or contact error)
- Connector PCB BUC** defective
- Controller PCB BUM** defective

9C.00 Charge Corotron: Charge Cor Clean Time Too Long

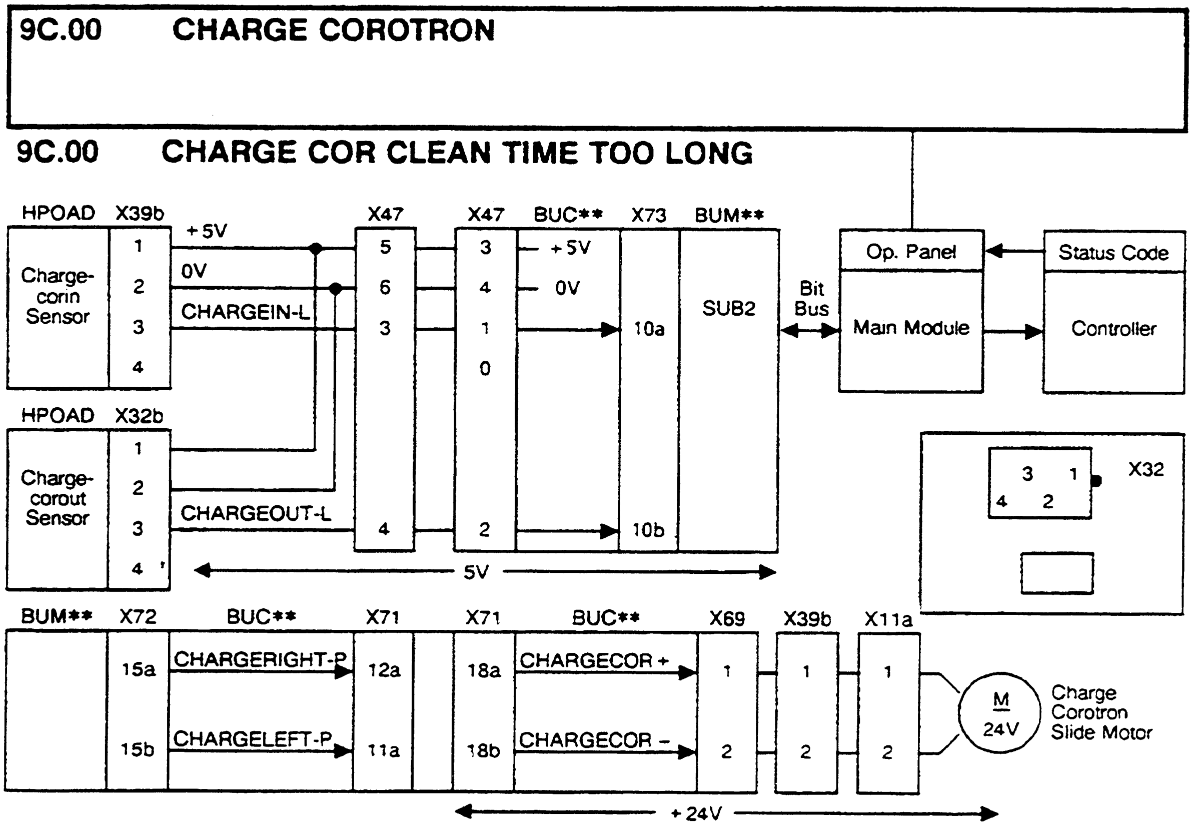

9C.00 CHARGE COROTRON
9C.00 CHARGE COR CLEAN TIME TOO LONG
HPOAD
X39b
+5V
0V
CHARGEIN-L
Charge-corin Sensor
1
2
3
4
X47
5
6
3
0
X47
3
4
1
2
BUC**
+5V
0V
X73
10a
10b
BUM**
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
HPOAD
X32b
Charge-corout Sensor
CHARGEOUT-L
5V
X32
3 1
4 2
BUM**
X72
15a
15b
BUC**
CHARGERIGHT-P
CHARGELEFT-P
X71
12a
11a
X71
18a
18b
BUC**
CHARGECOR +
CHARGECOR −
X69
X39b
X11a
M
24V
Charge Corotron Slide Motor
+24V

Figure 3-168. 9C.00 Charge Corotron: Charge Cor Clean Time Too Long

Error Byte: 12/10

Cleaning of Charge Corotron Lasts Too Long

The 6 charge corotron wires are cleaned by triggering a 24V motor at the charge corotron insert. This motor moves a slide that picks up the corotron wire ends and pulls the wires out of the cartridges; during this process, the corotron wires are cleaned. A magnet is mounted at the corotron slide which is evaluated by 2 Hall sensor PCBs. Two positions are possible:

In-Position:

- corotron slide is situated at the operator panel side
- corotron wires are in the cartridge
- corotron cartridges may be replaced
- sensor PCB HPOAD generates signal CHARGEIN-L which is evaluated by submodule 2.

Signal CHARGEIN-L=0V if In-position has been reached, +5V if In-position has not been reached.

Out-Position:

- corotron slide is situated on the rear side
- corotron wires are drawn out of the cartridge
- corotron cartridges cannot be replaced
- sensor PCB HPOAD generates signal CHARGEOUT-L which is evaluated by submodule 2.

Signal CHARGEOUT-L=0V if Out-position has been reached, +5V if Out-position has not been reached. During preparation and clean stop, the corotron slide first moves in forward direction until the In-position has been reached and then backward until it reaches the Out-position. For replacing the corotron cartridges, the slide moves into In-position. An error message is generated when the In-/Out-position has not been reached after 9 seconds.

Possible Error Causes

- Corotron slide stiff
- Motor, drive wheel, punched belt, or cleaning slide defective
- Sensor PCB defective or misadjusted
- Magnet defective or misadjusted
- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** defective, connector PCB BUC** defective
- Power supply PCB BUP** defective (motor control)

9C.01 Charge Corotron: Both Sensors Active

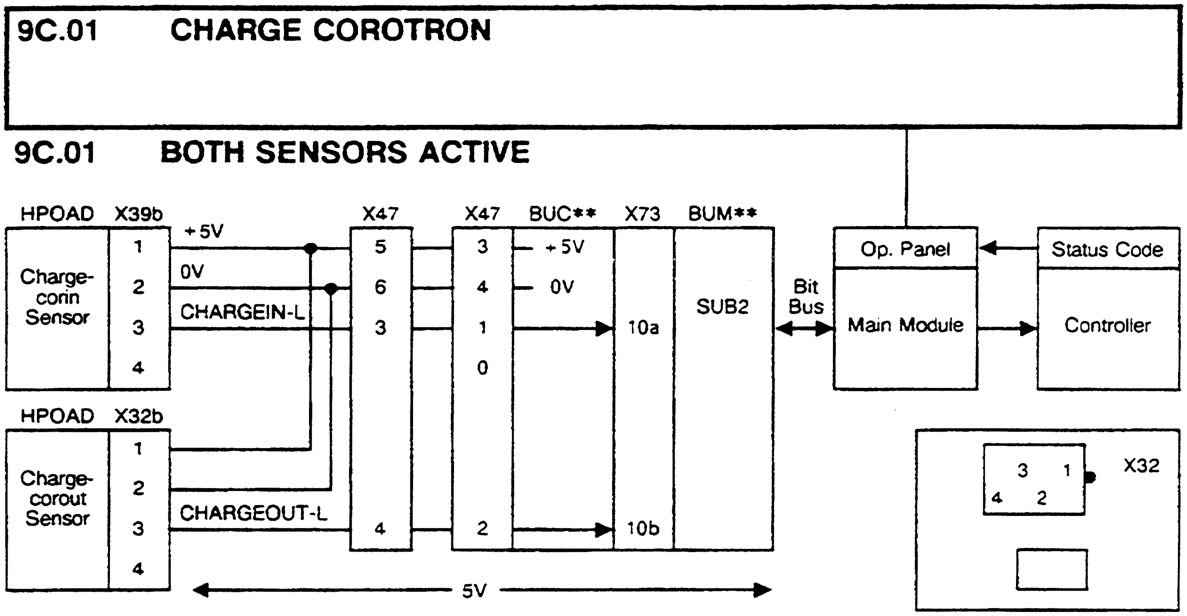

9C.01 CHARGE COROTRON
9C.01 BOTH SENSORS ACTIVE
HPOAD X39b
Charge-corin Sensor
1
2
3
4
+5V
0V
CHARGEIN-L
HPOAD X32b
Charge-corout Sensor
1
2
3
4
CHARGEOUT-L
X47
5
6
3
4
X47
3
4
1
0
2
BUC**
+5V
0V
X73
10a
10b
BUM**
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
X32
3 1
4 2
5V

Figure 3-169. 9C.01 Charge Corotron: Both Sensors Active

Error Byte: 13/02

In/Out Position Charge Corotron Detected Simultaneously

A magnet is mounted at the corotron slide which is evaluated by 2 Hall sensor PCBs. Two positions are possible:

In-Position:

- corotron slide is situated at the operator panel side
- corotron wires are in the cartridge
- corotron cartridges may be replaced
- sensor PCB HPOAD generates signal CHARGEIN-L which is evaluated by submodule 2.

Signal CHARGEIN-L=0V if In-position has been reached, +5V if In-position has not been reached.

Out-Position:

- corotron slide is situated at the rear side
- corotron wires are drawn out of the cartridge
- corotron cartridges cannot be replaced
- sensor PCB HPOAD generates signal CHARGEOUT-L which is evaluated by submodule 2.

Signal CHARGEOUT-L=0V if Out-position has been reached, +5V if Out-position has not been reached. An error message is generated when the In- and Out-positions are detected simultaneously. This error monitoring is constantly active.

Possible Error Causes

- Sensor PCB defective
- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** defective
- Connector PCB BUC** defective

9C.02 Charge Corotron: Inpos or Outpos Not Left

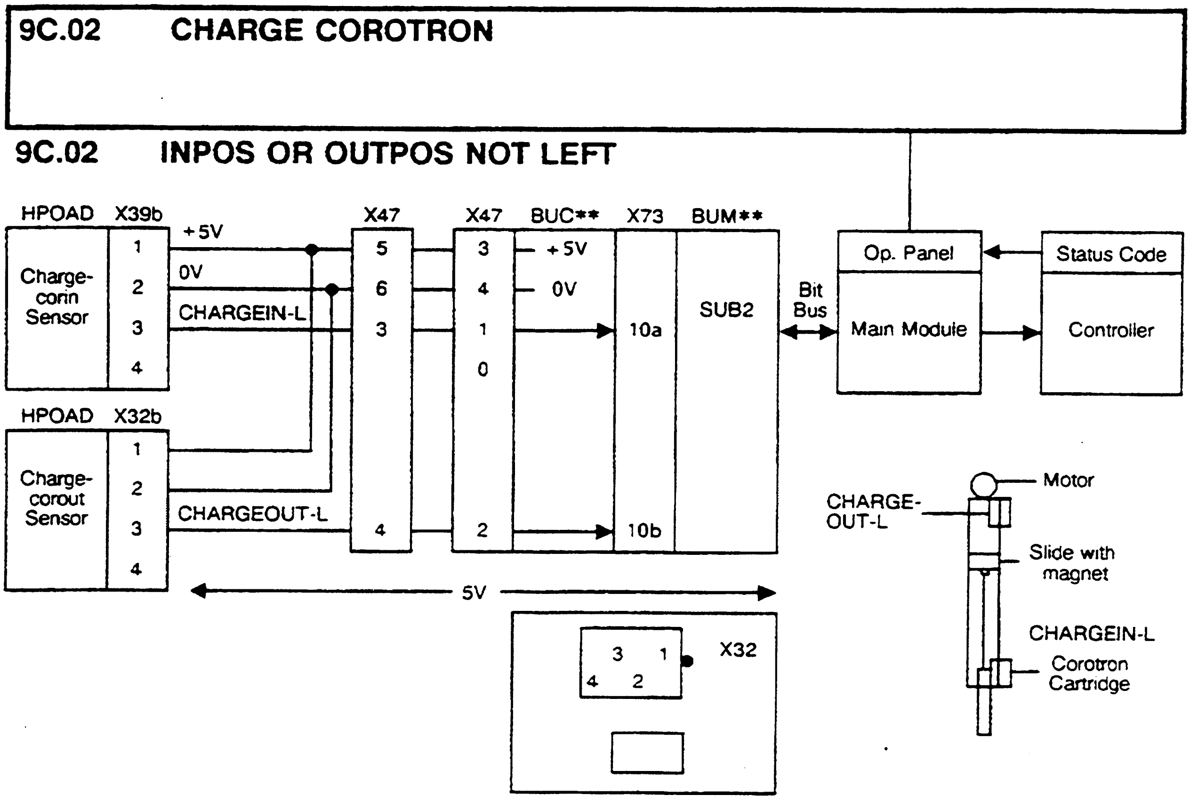

9C.02 CHARGE COROTRON
9C.02 INPOS OR OUTPOS NOT LEFT
HPOAD X39b
Charge-corin Sensor
1
2
3
4
+5V
0V
CHARGEIN-L
HPOAD X32b
Charge-corout Sensor
1
2
3
4
CHARGEOUT-L
X47
5
6
3
4
X47
3
4
1
0
2
BUC**
+5V
0V
X73
10a
10b
BUM**
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V
3 1
4 2
X32
Motor
CHARGE-OUT-L
Slide with magnet
CHARGEIN-L
Corotron Cartridge

Figure 3-170. 9C.02 Charge Corotron: Inpos or Outpos Not Left

Error Byte: 13/08

In-/Out-Position Has Not Been Left

The 6 charge corotron wires are cleaned by triggering a 24V motor at the charge corotron insert. This motor moves a slide that picks up the corotron wire ends and pulls the wires out of the cartridges; during this process, the corotron wires are cleaned. A magnet is mounted at the corotron slide which is evaluated by 2 Hall sensor PCBs. Two positions are possible:

In-Position:

- corotron slide is situated at the operator panel side
- corotron wires are in the cartridge
- corotron cartridges may be replaced
- sensor PCB HPOAD generates signal CHARGEIN-L which is evaluated by submodule 2.

Signal CHARGEIN-L=0V if In-position has been reached, +5V if In-position has not been reached.

Out-Position:

- corotron slide is situated on the rear side
- corotron wires are drawn out of the cartridge
- corotron cartridges cannot be replaced
- sensor PCB HPOAD generates signal CHARGEOUT-L which is evaluated by submodule 2.

Signal CHARGEOUT-L=0V if Out-position has been reached, +5V if Out-position has not been reached.

During preparation and clean stop, the corotron slide first moves in the forward direction until it reaches the In-position and then backward until it reaches the Out-position. For replacing the corotron cartridges,

the slide moves into In-position. An error message is generated when the In-/Out-position is not left after triggering the charge corotron motor.

Possible Error Causes

- Corotron slide stiff
- Motor, drive wheel, punched belt or cleaning slide defective
- Sensor PCB defective or misadjusted
- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** defective, connector PCB BUC** defective
- Power supply PCB BUP** defective (motor control)

9D.00 Discharge Corotron: Discharge Cor Clean Time Too Long

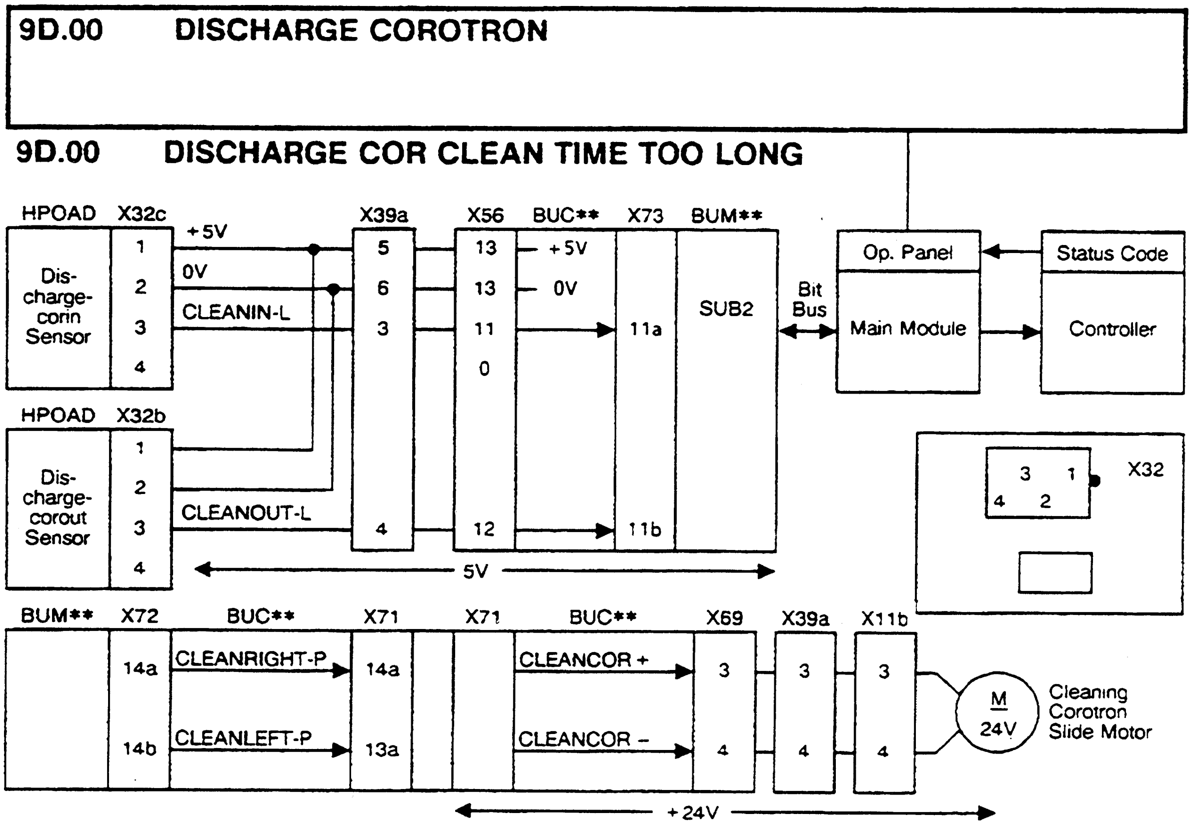

9D.00 DISCHARGE COROTRON
9D.00 DISCHARGE COR CLEAN TIME TOO LONG
HPOAD
X32c
Dis-charge-corin Sensor
1
2
3
4
+5V
0V
CLEANIN-L
X39a
5
6
3
4
X56
13
13
11
0
12
BUC**
+5V
0V
X73
11a
11b
BUM**
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
HPOAD
X32b
Dis-charge-corout Sensor
1
2
3
4
CLEANOUT-L
5V
3 1
4 2
X32
BUM**
X72
14a
14b
BUC**
CLEANRIGHT-P
CLEANLEFT-P
X71
14a
13a
X71
BUC**
CLEANCOR +
CLEANCOR -
X69
3
4
X39a
3
4
X11b
3
4
M
24V
Cleaning Corotron Slide Motor
+24V

Figure 3-171. 9D.00 Discharge Corotron: Discharge Cor Clean Time Too Long

Error Byte: 12/20

Cleaning of Discharge Corotron Lasts Too Long

The discharge corotron wire is cleaned by triggering a 24V motor at the cleaning corotron insert. This motor moves a slide that picks up the corotron wire end and pulls the wire out of the cartridge; during this process, the corotron wire is cleaned. A magnet is mounted at the corotron slide which is evaluated by 2 Hall sensor PCBs. Two positions are possible:

In-Position:

- corotron slide is situated at the operator panel side
- corotron wire is in the cartridge
- corotron cartridge may be replaced
- sensor PCB HPOAD generates signal CLEANIN-L which is evaluated by submodule 2.

Signal CLEANIN-L=0V if In-position has been reached, +5V if In-position has not been reached.

Out-Position:

- corotron slide is situated on the rear side
- corotron wire is drawn out of the cartridge
- corotron cartridge cannot be replaced
- sensor PCB HPOAD generates signal CLEANOUT-L which is evaluated by submodule 2.

Signal CLEANOUT-L=0V if Out-position has been reached, +5V if Out-position has not been reached.

During preparation and clean stop, the corotron slide first moves in the forward direction until it reaches the In-position and then backward until it reaches the Out-position. For replacing the corotron cartridge, the slide moves into In-position. An error message is generated when the In-/Out-position has not been reached after 9 seconds.

Possible Error Causes

- Corotron slide stiff
- Motor, drive wheel, punched belt or cleaning slide defective
- Sensor PCB defective or misadjusted
- Magnet defective or misadjusted
- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** defective, connector PCB BUC** defective
- Power supply PCB BUP** defective (motor control)

9D.01 Discharge Corotron: Both Sensors Active

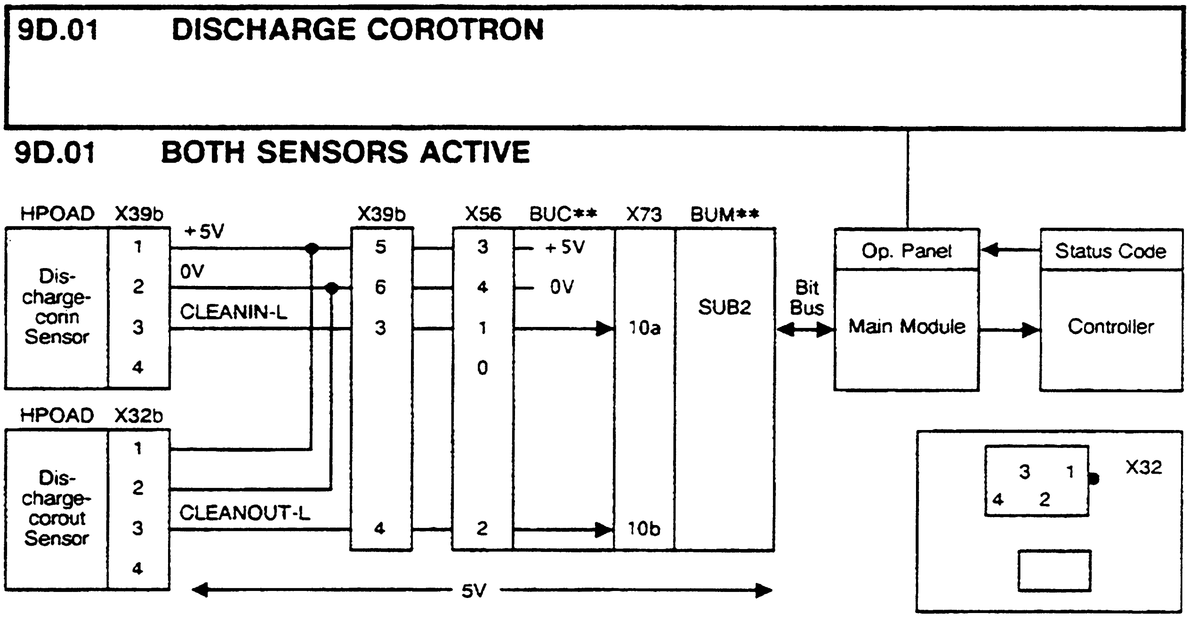

9D.01 DISCHARGE COROTRON
9D.01 BOTH SENSORS ACTIVE
HPOAD X39b
Dis-charge-conn Sensor
1
2
3
4
+5V
0V
CLEANIN-L
HPOAD X32b
Dis-charge-corout Sensor
CLEANOUT-L
X39b
5
6
3
4
X56
3
4
1
0
2
BUC**
+5V
0V
X73
10a
10b
BUM**
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V
X32
3 1
4 2

Figure 3-172. 9D.01 Discharge Corotron: Both Sensors Active

Error Byte: 13/20

In/Out Position Discharge Corotron Detected Simultaneously

A magnet is mounted at the corotron slide which is evaluated by 2 Hall sensor PCBs. Two positions are possible:

In-Position:

- corotron slide is situated at the operator panel side
- corotron wire is in the cartridge
- corotron cartridge may be replaced
- sensor PCB HPOAD generates signal CLEANIN-L which is evaluated by submodule 2.

Signal CLEANIN-L=0V if In-position has been reached, +5V if In-position has not been reached.

Out-Position:

- corotron slide is situated at the rear side
- corotron wire is drawn out of the cartridge
- corotron cartridge cannot be replaced
- sensor PCB HPOAD generates signal CLEANOUT-L which is evaluated by submodule 2.

Signal CLEANOUT-L=0V if Out-position has been reached, +5V if Out-position has not been reached.

An error message is generated when the In- and Out-positions are detected simultaneously. This error monitoring is constantly active.

Possible Error Causes

- Sensor PCB defective
- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** defective
- Connector PCB BUC** defective

9D.02 Discharge Corotron: Inpos or Outpos Not Left

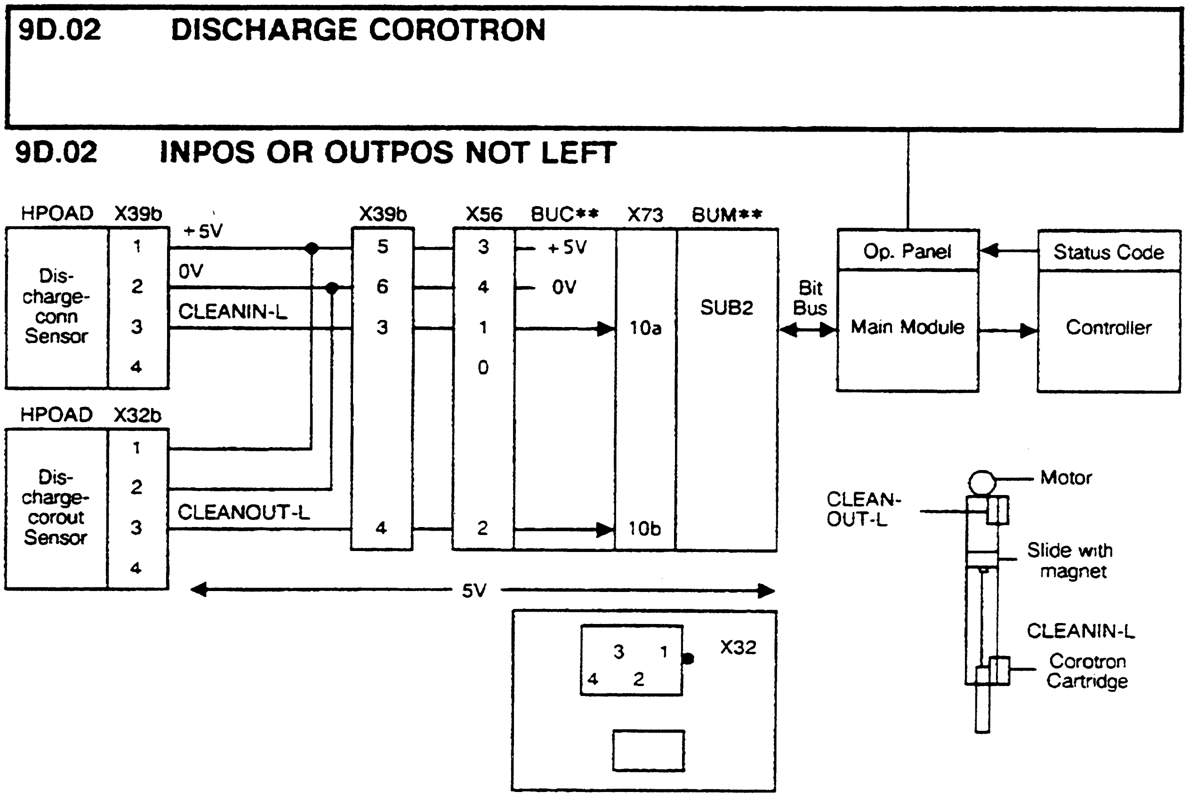

9D.02 DISCHARGE COROTRON
9D.02 INPOS OR OUTPOS NOT LEFT
HPOAD
X39b
Dis-charge-conn Sensor
1
2
3
4
+5V
0V
CLEANIN-L
HPOAD
X32b
Dis-charge-corout Sensor
1
2
3
4
CLEANOUT-L
X39b
5
6
3
4
X56
3
4
1
0
2
BUC**
+5V
0V
X73
10a
10b
BUM**
SUB2
Bit Bus
Op. Panel
Main Module
Status Code
Controller
5V
3 1
4 2
X32
Motor
CLEAN-OUT-L
Slide with magnet
CLEANIN-L
Corotron Cartridge

Figure 3-173. 9D.02 Discharge Corotron: Inpos or Outpos Not Left

Error Byte: 13/80

Cleaning of Discharge Corotron Lasts Too Long

The discharge corotron wire is cleaned by triggering a 24V motor at the discharge corotron insert. This motor moves a slide that picks up the corotron wire end and pulls the wire out of the cartridge; during this process, the corotron wire is cleaned. A magnet is mounted at the corotron slide which is evaluated by 2 Hall sensor PCBs. Two positions are possible:

In-Position:

- corotron slide is situated at the operator panel side
- corotron wire is in the cartridge
- corotron cartridge may be replaced
- sensor PCB HPOAD generates signal CLEANIN-L which is evaluated by submodule 2.

Signal CLEANIN-L=0V if In-position has been reached, +5V if In-position has not been reached.

Out-Position:

- corotron slide is situated on the rear side
- corotron wire is drawn out of the cartridge
- corotron cartridge cannot be replaced
- sensor PCB HPOAD generates signal CLEANOUT-L which is evaluated by submodule 2.

Signal CLEANOUT-L=0V if Out-position has been reached, +5V if Out-position has not been reached.

During preparation and clean stop, the corotron slide first moves in the forward direction until it reaches the In-position and then backward until it reaches the Out-position. For replacing the corotron cartridge, the slide moves into In-position. An error message is generated when the In-/Out-position is not left after triggering the discharge corotron motor.

Possible Error Causes

- Corotron slide stiff
- Motor, drive wheel, punched belt or cleaning slide defective
- Sensor PCB defective or misadjusted
- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** defective, connector PCB BUC** defective
- Power supply PCB BUP** defective (motor control)

A0.00 Device Electronics Inop: Submodul 1 Not Connected

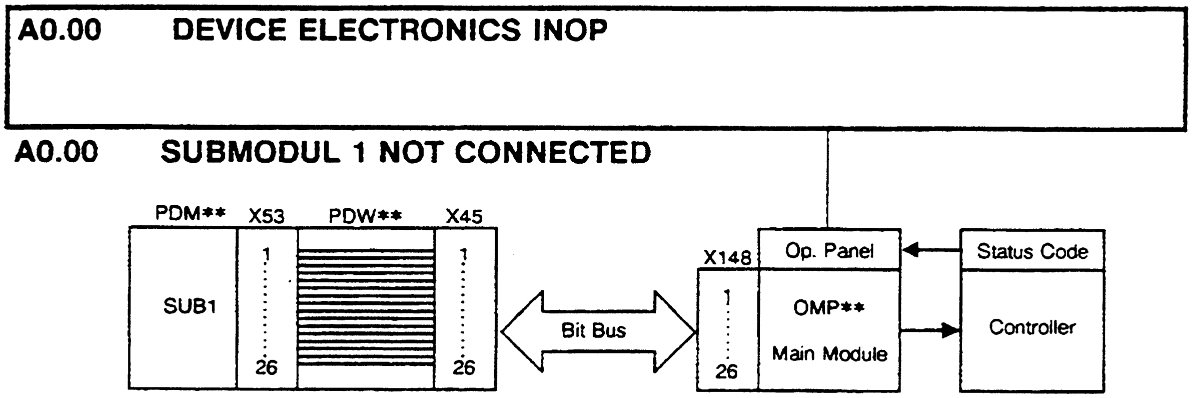

A0.00 DEVICE ELECTRONICS INOP
A0.00 SUBMODUL 1 NOT CONNECTED
PDM**
X53
PDW**
X45
SUB1
1
26
1
26
Bit Bus
X148
1
26
Op. Panel
OMP**
Main Module
Status Code
Controller

Figure 3-174. A0.00 Device Electronics Inop: Submodul 1 Not Connected

Error Byte: 01/01

Submodule 1 Does Not Respond to Main Module Frames

In the INIT phase, all submodules are polled by the main module via the HSCC bus. If one submodule does not respond within a timeout monitoring, the submodule is not detected and the error frame `A0.00 DEVICE ELECTRONICS INOP` is sent to the controller which writes the display.

Possible Error Causes

- Line error at bit-bus (short circuit, line breakage, or contact error)
- Controller PCB PDM** defective
- Connector PCB PDW** defective
- Main module defective
- Check+5V/0V at submodule 1

A0.01 Device Electronics Inop: Submodul 2 Not Connected

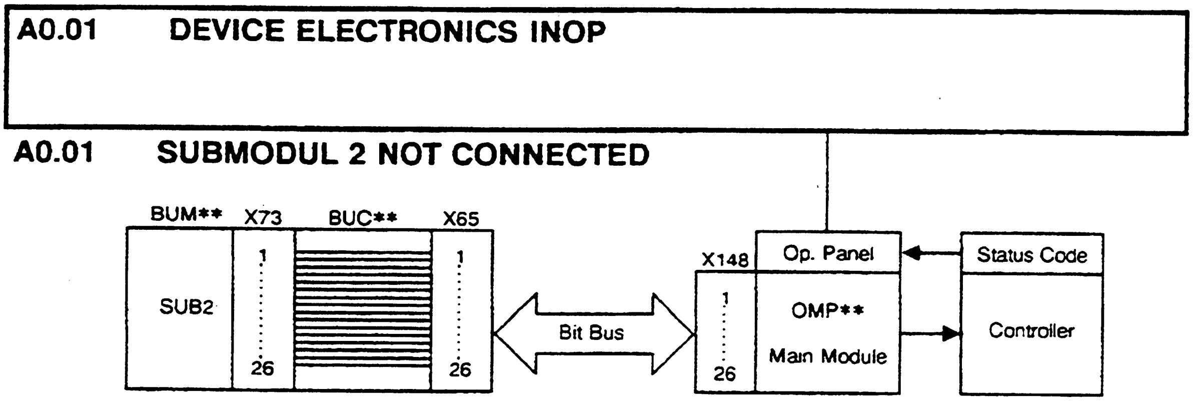

A0.01 DEVICE ELECTRONICS INOP
A0.01 SUBMODUL 2 NOT CONNECTED
BUM**
X73
BUC**
X65
SUB2
1
26
1
26
Bit Bus
X148
1
26
Op. Panel
OMP**
Main Module
Status Code
Controller

Figure 3-175. A0.01 Device Electronics Inop: Submodul 2 Not Connected

Error Byte: 01/02

Submodule 2 Does Not Respond to Main Module Frames

In the INIT phase, all submodules are polled by the main module via the HSCC bus. If one submodule does not respond within a timeout monitoring, the submodule is not detected and the error frame `A0.01 DEVICE ELECTRONICS INOP` is sent to the controller which writes the display.

Possible Error Causes

- Line error (short circuit, line breakage, or contact error)
- Controller PCB BUM** defective
- Connector PCB BUC** defective
- Main module defective
- Check+5V/0V at submodule 2

A0.02 Device Electronics Inop: Submodul 3 Not Connected

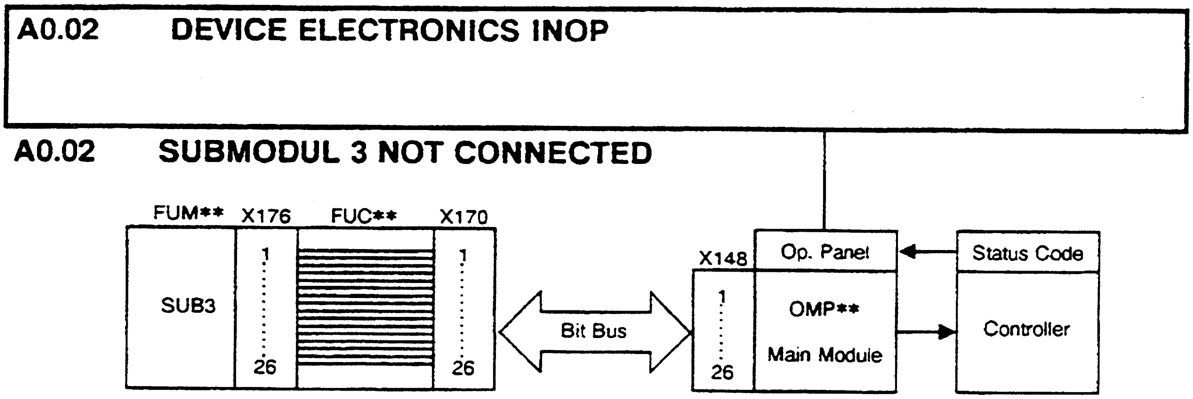

A0.02 DEVICE ELECTRONICS INOP
A0.02 SUBMODUL 3 NOT CONNECTED
FUM**
X176
FUC**
X170
SUB3
1
26
1
26
Bit Bus
X148
1
26
Op. Panel
OMP**
Main Module
Status Code
Controller

Figure 3-176. A0.02 Device Electronics Inop: Submodul 3 Not Connected

Error Byte: 01/04

Submodule 3 Does Not Respond to Main Module Frames

In the INIT phase, all submodules are polled by the main module via the HSCC bus. If one submodule does not respond within a timeout monitoring, the submodule is not detected and the error frame `A0.02 DEVICE ELECTRONICS INOP` is sent to the controller which writes the display.

Possible Error Causes

- Line error (short circuit, line breakage, or contact error)
- Controller PCB FUM** defective
- Connector PCB FUC** defective
- Main module defective
- Check+5V/0V at submodule 3

A0.03 Device Electronics Inop: Submodul 4 Not Connected

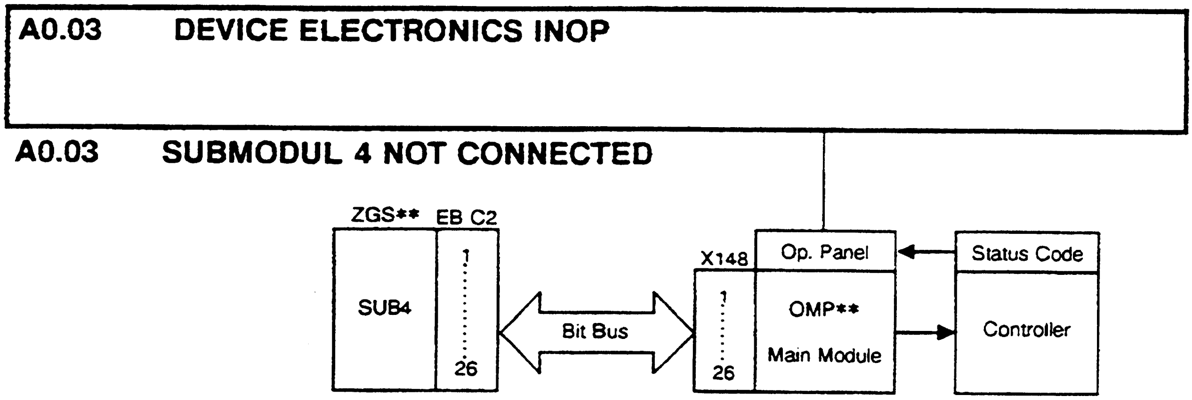

A0.03 DEVICE ELECTRONICS INOP
A0.03 SUBMODUL 4 NOT CONNECTED
ZGS** EB C2
SUB4
1
26
Bit Bus
X148
1
26
Op. Panel
OMP**
Main Module
Status Code
Controller

Figure 3-177. A0.03 Device Electronics Inop: Submodul 4 Not Connected

Error Byte: 01/08

Submodule 4 Does Not Respond to Main Module Frames

In the INIT phase, all submodules are polled by the main module via the HSCC bus. If one submodule does not respond within a timeout monitoring, the submodule is not detected and the error frame `A0.03 DEVICE ELECTRONICS INOP` is sent to the controller which writes the display.

Possible Error Causes

- Line error at bit bus (short circuit, line breakage, or contact error)
- Controller PCB ZGS** defective
- Main module defective
- Check+5V/0V at submodule 4

A0.04 Device Electronics Inop: FBG. PDA** Defect

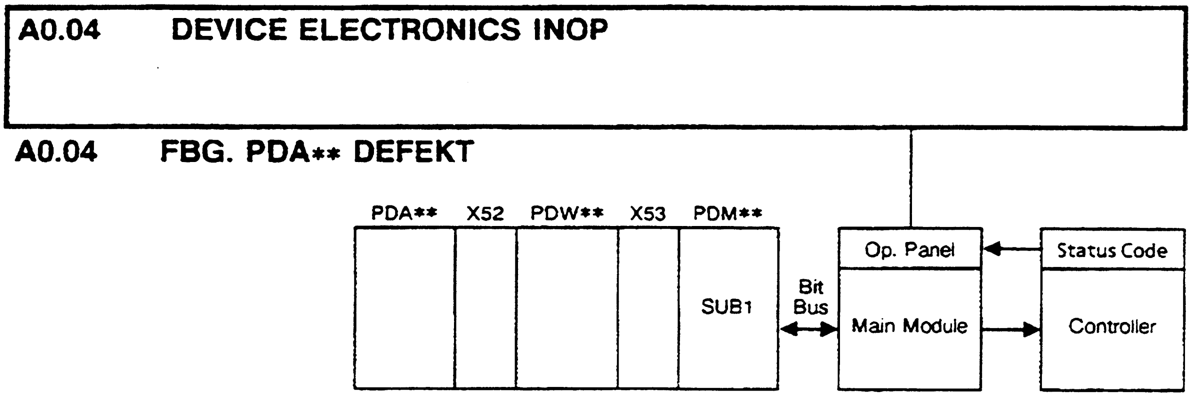

A0.04 DEVICE ELECTRONICS INOP
A0.04 FBG. PDA** DEFEKT
PDA**
X52
PDW**
X53
PDM**
SUB1
Bit Bus
Op. Panel
Main Module
Status Code
Controller

Figure 3-178. A0.04 Device Electronics Inop: FBG PDA** Defect

Error Byte: 04/80 not yet realized

Power Supply PCB in Submodule 1 Defective

A0.07 Device Electronics Inop: FBG. BUM** Defect

```
A0.07       DEVICE ELECTRONICS INOP

A0.07      FBG. BUM** DEFEKT
```

Figure 3-179. A0.07 Device Electronics Inop: FBG. BUM** Defect

Error Byte: 13/01 not yet realized

Controller PCB BUM** in Submodule 2 Defective

A0.09 Device Electronics Inop: Overtemperature on FBG FUPAB

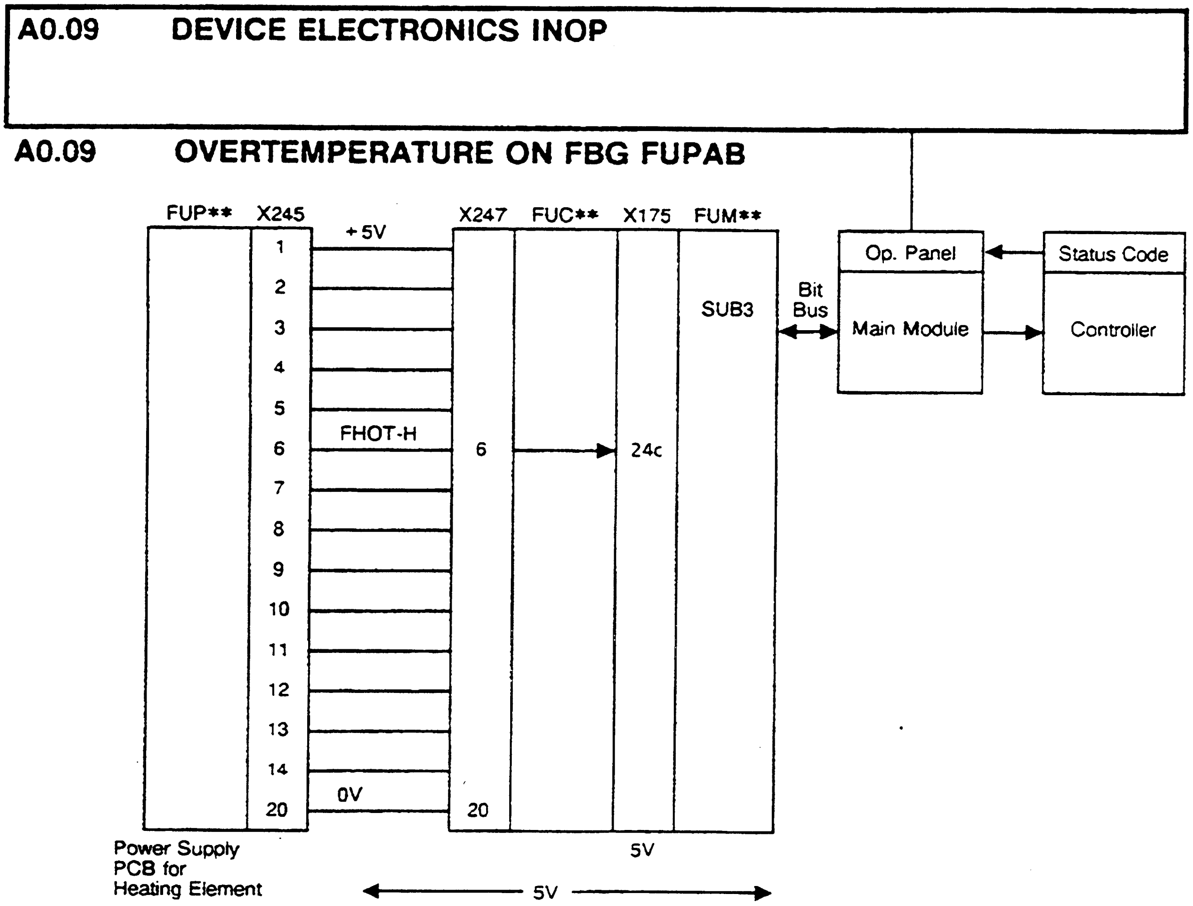

A0.09 DEVICE ELECTRONICS INOP
A0.09 OVERTEMPERATURE ON FBG FUPAB
FUP**
X245
+5V
X247
FUC**
X175
FUM**
1
2
3
4
5
6
7
8
9
10
11
12
13
14
20
FHOT-H
6
24c
0V
20
SUB3
Bit Bus
Op. Panel
Main Module
Status Code
Controller
Power Supply PCB for Heating Element
5V
5V

Figure 3-180. A0.09 Device Electronics Inop: Overtemperature on FBG FUPAB

Error Byte: 22/08

Cooling Units on Heater PCB Too Hot

The SIPMOS transistors are mounted on a cooling unit in order to protect them against thermic destruction. The built-in cooling units are cooled by two fans. The SIPMOS transistor cooling unit may reach a maximum temperature of 80°C. The temperature sensors convert the cooling unit temperature to an equivalent voltage of 2.5V and +5V. The temperature sensor is mounted on the power supply PCB D91. As soon as the cooling unit exceeds its maximum temperature value, signal SINK-P=1 is set. Simultaneously, the error flipflop is set (HEATOFF-H at connector X 277/9=1) and the PCB is disconnected from the mains supply (NOTAUS). The fans for cooling the power supply PCB are triggered as soon as the contactor K10 has pulled through.

Possible Error Causes

- Cooling fans dirty or defective
- Cooling fans not activated
- Check radiant heater
- Line error (short circuit, line breakage, contact error)
- Temperature sensors on cooling units defective
- Controller PCB FUM** defective
- Connector PCB FUC** defective
- Power supply PCB D91 defective

A1.00 Rotating Field Error

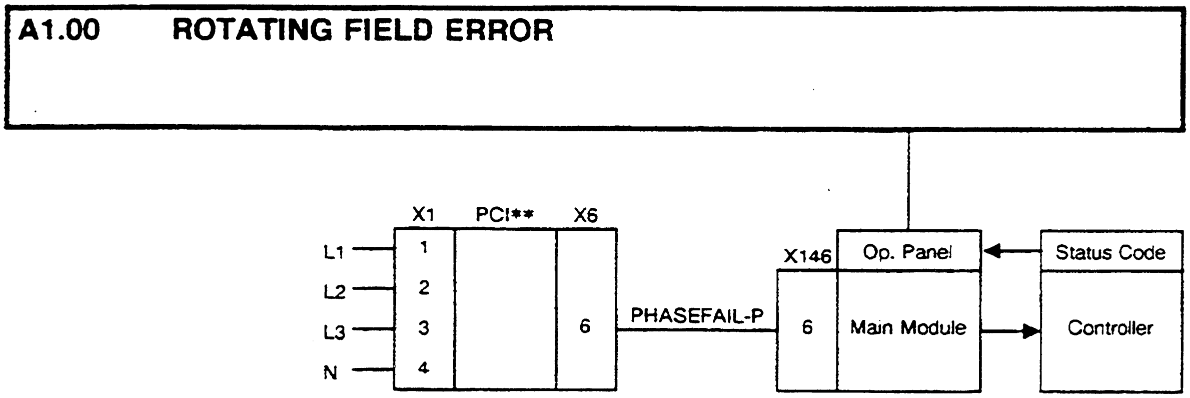

A1.00 ROTATING FIELD ERROR
X1
PCI**
X6
L1
L2
L3
N
1
2
3
4
6
PHASEFAIL-P
X146
6
Op. Panel
Main Module
Status Code
Controller

Figure 3-181. A1.00 Rotating Field Error

Error Byte: 01/10

Phase Error

The applied phases are monitored on the PCB PCI**. If the phases are not in the correct sequence on the terminal block X100 (see overview plan NDX Basic Unit square H1), signal PHASEFAIL-P (corresponds to +5V) is generated and read in on the read port of the main module. In the initialization phase, the input is monitored by the main module. If a phase error is detected, the main module remains in the INIT phase and contactor K10 does not pull through.

A3.00 Communication Error DE

A3.00 COMMUNICATION ERROR DE

Figure 3-182. A3.00 Communication Error DE

Error Byte: 01/40

Incorrect Communication Between Main Module and Controller

A6.00 Device Power Off: Device Power Switched Off

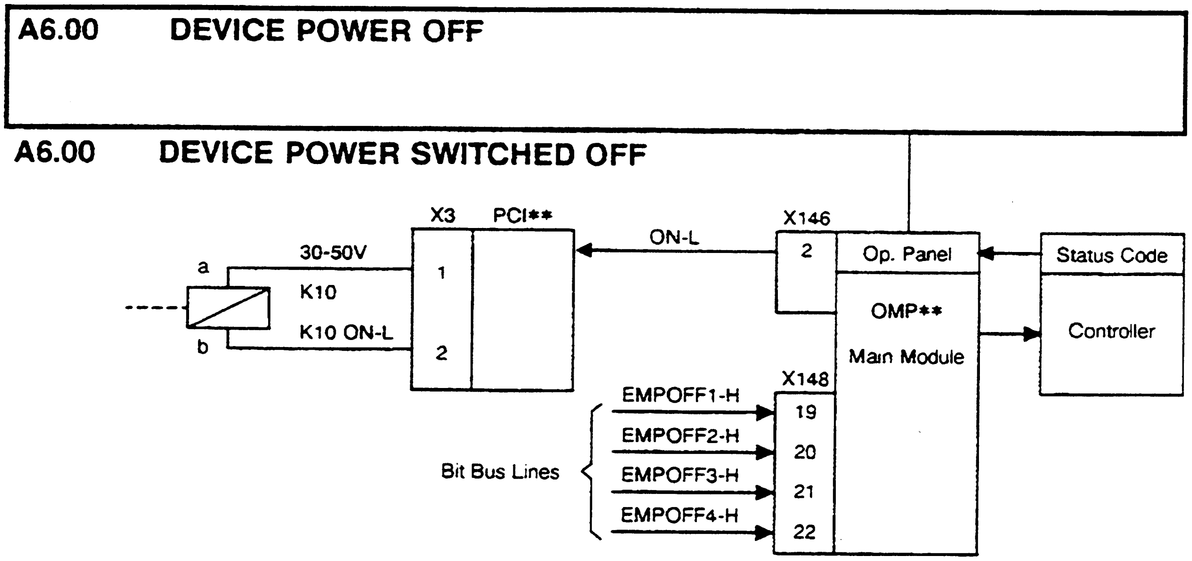

A6.00 DEVICE POWER OFF
A6.00 DEVICE POWER SWITCHED OFF
X3
PCI**
ON-L
X146
2
Op. Panel
Status Code
30-50V
a
1
K10
OMP**
K10 ON-L
Controller
b
2
Main Module
X148
EMPOFF1-H
19
EMPOFF2-H
20
Bit Bus Lines
EMPOFF3-H
21
EMPOFF4-H
22

Figure 3-183. A6.00 Device Power Off: Device Power Switched Off

Error Byte: 01/20

Main Module Has Switched Off Contactor K10

The main module always checks the EMPOFF lines (Emergency Power OFF) of all submodules. If one of the EMPOFF lines is set by a submodule, the main module switches off contactor K10 with the signal ON-L to the PCI (Power Control Interface). The 5V power supply remains active.

All EMPOFF lines inactive	⇒	EMPOFF1-4	=	0V
	⇒	ON-L	=	0V
	⇒	K10 ON-L	=	0V
One EMPOFF line active	⇒	EMPOFF	=	5V
	⇒	ON-L	=	5V
	⇒	K10 ON-L	=	30 - 50V

Possible Error Causes

- One of the submodules has an error
- Line error (short circuit, line breakage, or contact error)
- Main module OMP** defective

A6.01 Device Power Off: No 40 Volt Supply on Papertransport

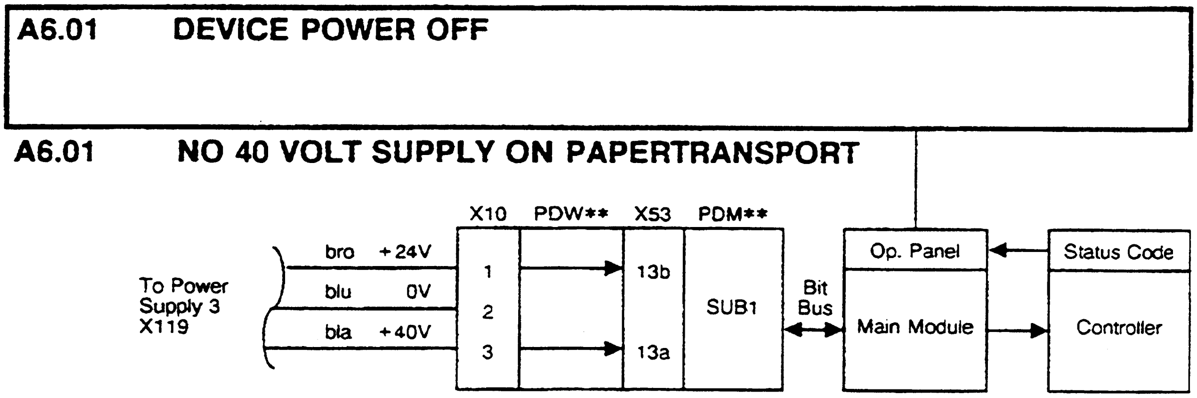

A6.01 DEVICE POWER OFF
A6.01 NO 40 VOLT SUPPLY ON PAPERTRANSPORT
X10
PDW**
X53
PDM**
To Power Supply 3 X119
bro +24V
blu 0V
bla +40V
1
2
3
13b
13a
SUB1
Bit Bus
Op. Panel
Main Module
Status Code
Controller

Figure 3-184. A6.01 Device Power Off: No 40 Volt Supply on Papertransport

Error Byte: 04/40

+40V Power Supply is Not Applied to Submodule 1

Via a resistor network, a voltage of +5V is generated from +40V and measured at the analog port of the processor. If the voltage is lacking, the error message `A6.01 DEVICE POWER OFF` is set.

Possible Error Causes

- Line error (short circuit, line breakage, or contact error)
  ⇒ Disconnect plug X240 on step motor PCB FUS** (SUB3)
- 40V/24V power supply defective
- Power supply PCB PDA** SUB1 defective
- Power supply PCB FUS** SUB3 defective
- Fuse at 40V/24V power supply has blown
- Controller PCB PDM** defective
- Connector PCB PDW** defective

A6.02 Device Power Off: No 24 Volt Supply on Papertransport

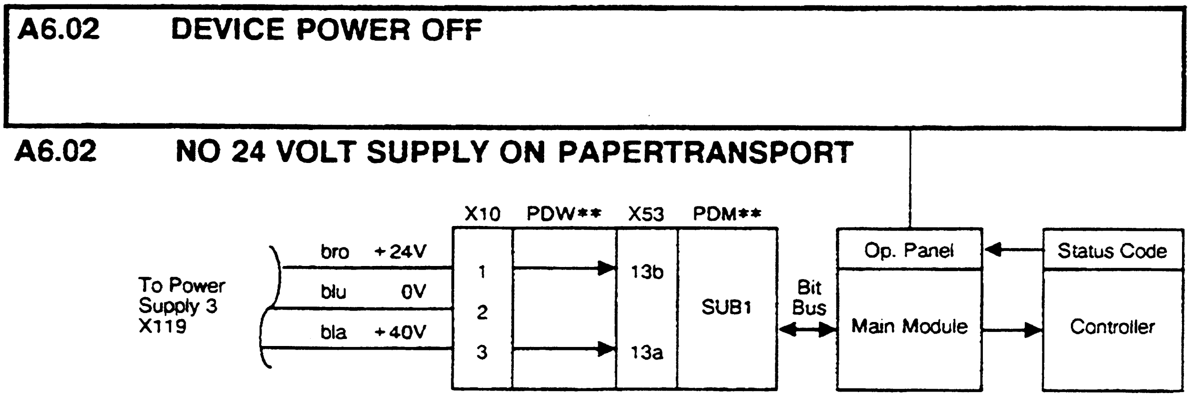

A6.02 DEVICE POWER OFF
A6.02 NO 24 VOLT SUPPLY ON PAPERTRANSPORT
X10
PDW**
X53
PDM**
To Power Supply 3 X119
bro +24V
blu 0V
bla +40V
1
2
3
13b
13a
SUB1
Bit Bus
Op. Panel
Main Module
Status Code
Controller

Figure 3-185. A6.02 Device Power Off: No 24 Volt Supply on Papertransport

Error Byte: 06/20

+24V Power Supply is Not Applied to Submodule 1

On PCB PDA**, a voltage of +5V is generated from +24V and used for the logics on the PCB (disadvantage: +24V voltage is not monitored for over- or undervoltage). If the voltage is lacking, the error message `A6.02 DEVICE POWER OFF` is set.

Possible Error Causes

- Line error (short circuit, line breakage, or contact error)
- Power supply PCB PDA** SUB1 defective
- Power supply PCB FUPAE SUB3 defective
  ⇒ Disconnect plug X250 on stepper motor PCB FUS** (SUB3)
- 40V/24V power supply defective
- Fuse at 40V/24V power supply has blown
- Controller PCB PDM** defective
- Connector PCB PDW** defective

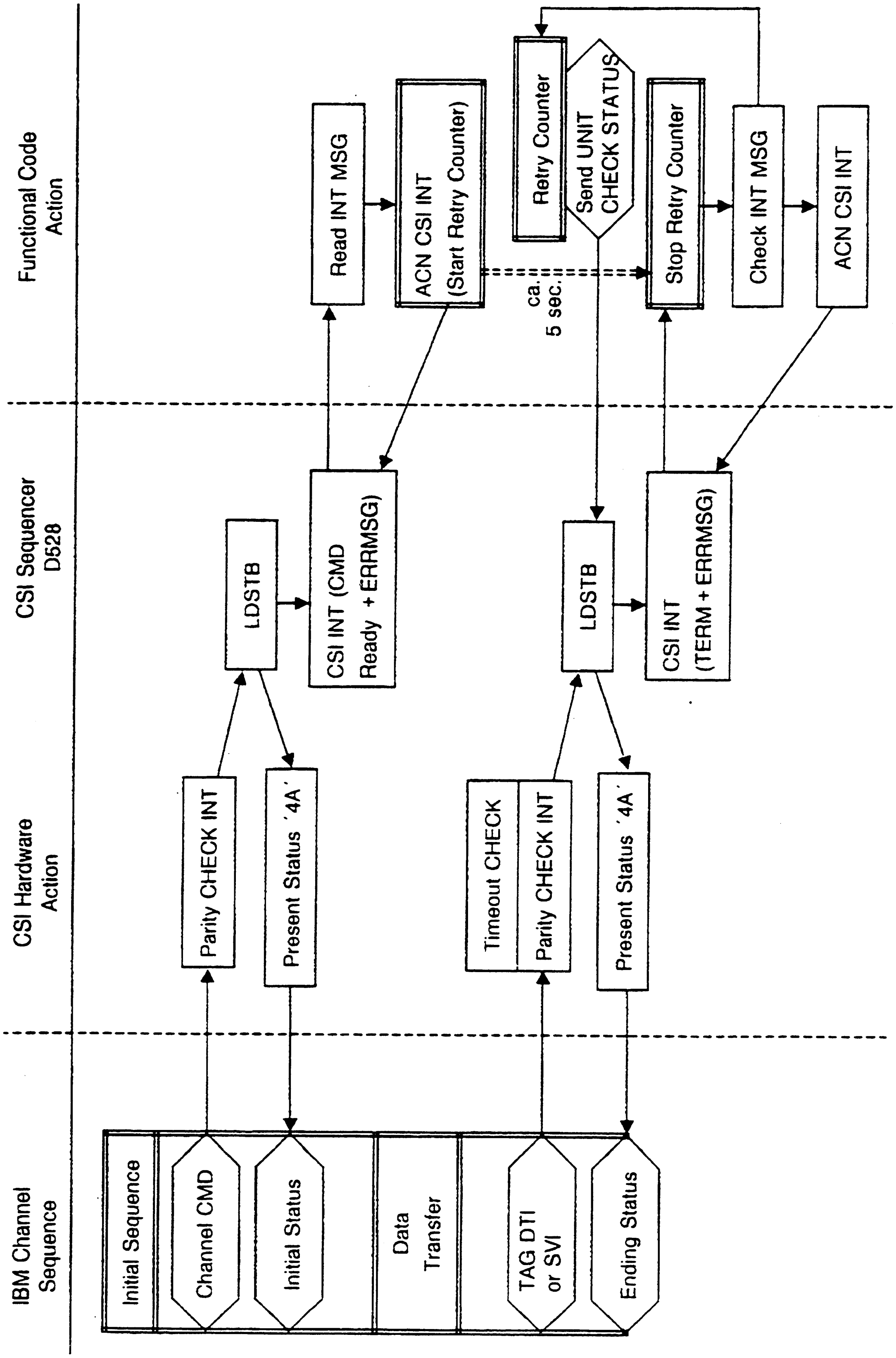

Functional Code Action
CSI Sequencer D528
CSI Hardware Action
IBM Channel Sequence
Read INT MSG
ACN CSI INT (Start Retry Counter)
Retry Counter
Send UNIT CHECK STATUS
Stop Retry Counter
Check INT MSG
ACN CSI INT
ca. 5 sec.
LDSTB
CSI INT (CMD Ready + ERRMSG)
LDSTB
CSI INT (TERM + ERRMSG)
Parity CHECK INT
Present Status '4A'
Timeout CHECK
Parity CHECK INT
Present Status '4A'
Initial Sequence
Channel CMD
Initial Status
Data Transfer
TAG DTI or SVI
Ending Status

Figure 3-186. Diagram of Communication Between CSI and Channel

B0.01 Bus Error Decompression Error

Error Cause

This error is detected on the processor level. The error may be caused by defective hardware and/or firmware. The error is triggered by processor interrupt 2 and occurs if:

- The processor attempts to write to a defective or non-existent memory address, or
- The processor attempts to write to an EPROM.

The error may also be set by the CSI. You can determine the cause by checking the address range displayed on the operator panel.

Address ranges 8000 0000 to 8FFF FFFF or A000 AFFF to AFFF FFFF indicate that the CSI has set the error. In that case proceed with instructions listed in procedure B1.01 CSI Hardware Error.

Error Recovery

Determine the conditions under which this error occurs.

1. Does the error occur during the boot process? Check FC floppy (using the CHECKDISK-command on the PC). If new FC version is being used, use previous version. Change controller PC board.
2. Does the error occur during normal operation? What are the marginal conditions during error occurrence? For example:
    - With or without overlay.
    - Which font was being used.
    - When loading an overlay or font.
    - Copy printing.
    - With which application does the error occur.
    - Did you replace EPROMs or PC boards.
    - Is the error reproducible on another printer with the same upgrades.
3. Is it a sporadic error? Create a trace of the error with your maintenance PC. Use SHOW commands (TRACECMD, RMCMD, TRACERM, RMOBJ) when the error occurs, save it on floppy and pass it on to your product specialist for error recovery.
4. Is the error reproducible? See 2 and 3.

B0.02 Illegal Address

Error Cause

This error is detected on the processor level. The error may be caused by defective hardware and/or firmware. The error is triggered by processor interrupt 3. It occurs when the processor attempts to write to a non-accessible memory range.

Error Recovery

Determine the conditions under which this error occurs.

1. Does the error occur during the boot process? Check FC floppy (using the CHECKDISK-command on the PC). If new FC version is being used, use previous version. Change controller PC board.
2. Does the error occur during normal operation? What are the marginal conditions during error occurrence? For example:
   - With or without overlay.
   - Which font was being used.
   - When loading an overlay or font.
   - Copy printing.
   - With which application does the error occur.
   - Did you replace EPROMs or PC boards.
   - Is the error reproducible on another printer with the same upgrades.
3. Is it a sporadic error? Create a trace of the error with your maintenance PC. Use SHOW commands (TRACECMD, RMCMD, TRACERM, RMOBJ) when the error occurs, save it on floppy and pass it on to your product specialist for error recovery.
4. Is the error reproducible? See 2 and 3.

B0.03 Zero Divide

Error Cause

This error is detected on the processor level. The error may be caused by defective hardware and/or firmware. The error is triggered by processor interrupt 5. It occurs when the processor attempts to execute an illegal operation, in this case division by zero.

Error Recovery

Determine the conditions under which this error occurs.

1. Does the error occur during the boot process? Check FC floppy (using the CHECKDISK-command on the PC). If new FC version is being used, use previous version. Change controller PC board.
2. Does the error occur during normal operation? What are the marginal conditions during error occurrence? For example:
   - With or without overlay.
   - Which font was being used.
   - When loading an overlay or font.
   - Copy printing.
   - With which application does the error occur.
   - Did you replace EPROMs or PC boards.
   - Is the error reproducible on another printer with the same upgrades.
3. Is it a sporadic error? Create a trace of the error with your maintenance PC. Use SHOW commands (TRACECMD, RMCMD, TRACERM, RMOBJ) when the error occurs, save it on floppy and pass it on to your product specialist for error recovery.
4. Is the error reproducible? See 2 and 3.

B0.04 Check Interrupt

Error Cause

This error is detected on the processor level. The error may be caused by defective hardware and/or firmware. The error is triggered by processor interrupt 6. It occurs when the processor must execute a CHK or CHK2 command.

Error Recovery

Determine the conditions under which this error occurs.

1. Does the error occur during the boot process? Check FC floppy (using the CHECKDISK-command on the PC). If new FC version is being used, use previous version. Change controller PC board.
2. Does the error occur during normal operation? What are the marginal conditions during error occurrence? For example:
   - With or without overlay.
   - Which font was being used.
   - When loading an overlay or font.
   - Copy printing.
   - With which application does the error occur.
   - Did you replace EPROMs or PC boards.
   - Is the error reproducible on another printer with the same upgrades.
3. Is it a sporadic error? Create a trace of the error with your maintenance PC. Use SHOW commands (TRACECMD, RMCMD, TRACERM, RMOBJ) when the error occurs, save it on floppy and pass it on to your product specialist for error recovery.
4. Is the error reproducible? See 2 and 3.

B0.05 Trap Interrupt

Error Cause

This error is detected on the processor level. The error may be caused by defective hardware and/or firmware. The error is triggered by processor interrupt 7. It may occur when a TRAPV or TRAPCC Interrupt must be handled that has no routine support.

Error Recovery

Determine the conditions under which this error occurs.

1. Does the error occur during the boot process? Check FC floppy (using the CHECKDISK-command on the PC). If new FC version is being used, use previous version. Change controller PC board.
2. Does the error occur during normal operation? What are the marginal conditions during error occurrence? For example:
   - With or without overlay.
   - Which font was being used.
   - When loading an overlay or font.
   - Copy printing.
   - With which application does the error occur.
   - Did you replace EPROMs or PC boards.
   - Is the error reproducible on another printer with the same upgrades.
3. Is it a sporadic error? Create a trace of the error with your maintenance PC. Use SHOW commands (TRACECMD, RMCMD, TRACERM, RMOBJ) when the error occurs, save it on floppy and pass it on to your product specialist for error recovery.
4. Is the error reproducible? See 2 and 3.

B0.06 Access Privilege Violation

Error Cause

This error is detected on the processor level. The error may be caused by defective hardware and/or firmware. The error is triggered by processor interrupt 8. It may occur when a TRAPV or TRAPCC Interrupt must be handled that has no routine support.

Error Recovery

Determine the conditions under which this error occurs.

1. Does the error occur during the boot process? Check FC floppy (using the CHECKDISK-command on the PC). If new FC version is being used, use previous version. Change controller PC board.
2. Does the error occur during normal operation? What are the marginal conditions during error occurrence? For example:
    - With or without overlay.
    - Which font was being used.
    - When loading an overlay or font.
    - Copy printing.
    - With which application does the error occur.
    - Did you replace EPROMs or PC boards.
    - Is the error reproducible on another printer with the same upgrades.
3. Is it a sporadic error? Create a trace of the error with your maintenance PC. Use SHOW commands (TRACECMD, RMCMD, TRACERM, RMOBJ) when the error occurs, save it on floppy and pass it on to your product specialist for error recovery.
4. Is the error reproducible? See 2 and 3.

B0.07 Coprocessor Interrupt

Error Cause

This error is detected on the processor level. The error may be caused by defective hardware and/or firmware. The error is triggered by processor interrupt 13. It may occur when an interrupt is recognized by a coprocessor.

Error Recovery

Determine the conditions under which this error occurs.

1. Does the error occur during the boot process? Check FC floppy (using the CHECKDISK-command on the PC). If new FC version is being used, use previous version. Change controller PC board.
2. Does the error occur during normal operation? What are the marginal conditions during error occurrence? For example:
   - With or without overlay.
   - Which font was being used.
   - When loading an overlay or font.
   - Copy printing.
   - With which application does the error occur.
   - Did you replace EPROMs or PC boards.
   - Is the error reproducible on another printer with the same upgrades.
3. Is it a sporadic error? Create a trace of the error with your maintenance PC. Use SHOW commands (TRACECMD, RMCMD, TRACERM, RMOBJ) when the error occurs, save it on floppy and pass it on to your product specialist for error recovery.
4. Is the error reproducible? See 2 and 3.

B0.08 Coprocessor Interrupt

Error Cause

This error is detected on the processor level. The error may be caused by defective hardware and/or firmware. The error is triggered by processor interrupt 12. It may occur when a Reserved Interrupt is recognized.

Error Recovery

Determine the conditions under which this error occurs.

1. Does the error occur during the boot process? Check FC floppy (using the CHECKDISK-command on the PC). If new FC version is being used, use previous version. Change controller PC board.
2. Does the error occur during normal operation? What are the marginal conditions during error occurrence? For example:
   - With or without overlay.
   - Which font was being used.
   - When loading an overlay or font.
   - Copy printing.
   - With which application does the error occur.
   - Did you replace EPROMs or PC boards.
   - Is the error reproducible on another printer with the same upgrades.
3. Is it a sporadic error? Create a trace of the error with your maintenance PC. Use SHOW commands (TRACECMD, RMCMD, TRACERM, RMOBJ) when the error occurs, save it on floppy and pass it on to your product specialist for error recovery.
4. Is the error reproducible? See 2 and 3.

B0.09 Spurious Interrupt

Error Cause

This error is detected on the processor level. The error may be caused by defective hardware and/or firmware. The error is triggered by processor interrupt 24. It may occur when an incorrect interrupt is recognized.

Error Recovery

Determine the conditions under which this error occurs.

1. Does the error occur during the boot process? Check FC floppy (using the CHECKDISK-command on the PC). If new FC version is being used, use previous version. Change controller PC board.
2. Does the error occur during normal operation? What are the marginal conditions during error occurrence? For example:
   - With or without overlay.
   - Which font was being used.
   - When loading an overlay or font.
   - Copy printing.
   - With which application does the error occur.
   - Did you replace EPROMs or PC boards.
   - Is the error reproducible on another printer with the same upgrades.
3. Is it a sporadic error? Create a trace of the error with your maintenance PC. Use SHOW commands (TRACECMD, RMCMD, TRACERM, RMOBJ) when the error occurs, save it on floppy and pass it on to your product specialist for error recovery.
4. Is the error reproducible? See 2 and 3.

B0.0A Trap Instruction

Error Cause

This error is detected on the processor level. The error may be caused by defective hardware and/or firmware. This error is set by the processor. The error may occur when a Trap Instruction is requested that cannot be executed.

Error Recovery

Determine the conditions under which this error occurs.

1. Does the error occur during the boot process? Check FC floppy (using the CHECKDISK-command on the PC). If new FC version is being used, use previous version. Change controller PC board.
2. Does the error occur during normal operation? What are the marginal conditions during error occurrence? For example:
   - With or without overlay.
   - Which font was being used.
   - When loading an overlay or font.
   - Copy printing.
   - With which application does the error occur.
   - Did you replace EPROMs or PC boards.
   - Is the error reproducible on another printer with the same upgrades.
3. Is it a sporadic error? Create a trace of the error with your maintenance PC. Use SHOW commands (TRACECMD, RMCMD, TRACERM, RMOBJ) when the error occurs, save it on floppy and pass it on to your product specialist for error recovery.
4. Is the error reproducible? See 2 and 3.

B0.0B Illegal Instruction

Error Cause

This error is detected on the processor level. The error may be caused by defective hardware and/or firmware. The error is triggered by processor interrupt 4. It may occur when the processor is requested to execute an illegal command.

Error Recovery

Determine the conditions under which this error occurs.

1. Does the error occur during the boot process? Check FC floppy (using the CHECKDISK-command on the PC). If new FC version is being used, use previous version. Change controller PC board.
2. Does the error occur during normal operation? What are the marginal conditions during error occurrence? For example:
   - With or without overlay.
   - Which font was being used.
   - When loading an overlay or font.
   - Copy printing.
   - With which application does the error occur.
   - Did you replace EPROMs or PC boards.
   - Is the error reproducible on another printer with the same upgrades.
3. Is it a sporadic error? Create a trace of the error with your maintenance PC. Use SHOW commands (TRACECMD, RMCMD, TRACERM, RMOBJ) when the error occurs, save it on floppy and pass it on to your product specialist for error recovery.
4. Is the error reproducible? See 2 and 3.

B3.01 PHILE INIT Error

Error Cause

PHILE.RUN is part of the operating system. This error occurs exclusively during the boot process and specifies that an incorrect or erroneous PHILE.RUN file is on the floppy disk.

Error Recovery

Reboot using the same floppy disk; if the error persists, use a different FC floppy disk or request new floppy disk.

B4.01 Check Floppy Disk Drive

Error Cause

The error cause may be:

- The specified drive door is not closed.
- No floppy disk has been inserted.
- The data cable is not connected to the drive.
- The drive has no power supply.
- The drive is defective.
- The drive has an incorrect address.

Error Recovery

Check the error causes listed above and replace both drives if necessary.

B5.01 File Not Found

Error Cause

The error is set when the required file (for example, GSP.RUN, CSI_TASK.RUN, or CSI_MSC.IQU) is not found.

Error Recovery

Check FC floppy drive for missing files.

B7.01 FEP Memory Full

Error Cause

The error may occur when you try to load too many fonts into the printer. Generally the necessary resources (fonts, overlays, macros, pages) cannot be stored by the controller and cause this error message to be displayed.

Error Recovery

Increase FEP memory (up to 8 MB are possible), or limit resources, for example, do no load unnecessary fonts.

B8.03 Timeout Error

Error Cause

Device electronics (main module) does not respond to a controller request frame. For example: When the controller electronics requests the command frame "PRINT COUNT REQ" (0A) for the print counter reading from device electronics, if the device electronics cannot furnish the data from the counter reading within a given period of one minute, error B8.03 is set.

Error Recovery

If the error occurs constantly, reboot the printer. If the error is not eliminated after the reboot, try the following:

- Create a trace of the error using your maintenance PC.
- Use another FC version (previous version).
- Change electronics of main module.
- Undo any changes you may have installed. Inform HP Field Service and have trace ready.

If the error occurs sporadically, also try to create a trace using your maintenance PC. Also determine the conditions under which this error occurs.

1. Does the error occur during the boot process? Check FC floppy (using the CHECKDISK-command on the PC). If new FC version is being used, use previous version. Change main module electronics. Change controller PC board.
2. Does the error occur during normal operation? What are the marginal conditions during error occurrence? For example:
   - With or without overlay.
   - Which font was being used.
   - When loading an overlay or font.
   - Copy printing.
   - With which application does the error occur.
   - Did you replace EPROMs or PC boards.
   - Is the error reproducible on another printer with the same upgrades.
3. Is it a sporadic error? Create a trace of the error with your maintenance PC. Use SHOW commands (TRACECMD, RMCMD, TRACERM, RMOBJ) when the error occurs, save it on floppy and pass it on to your product specialist for error recovery.
4. Is the error reproducible? See 2 and 3.

B8.04 Timeout Error

Error Cause

This error is set when the Functional Code transfers the command "CSI Mode Change" to the SCSI and the command remains unanswered for two seconds. An example of a "Mode Change" command is setting the SCSI in online or offline condition. The error may be caused by erroneous hardware or software.

Error Recovery

If the error occurs constantly, reboot the printer. If the error is not eliminated after the reboot, try the following:

- Create a trace of the error using your maintenance PC.
- Use another FC version (previous version).
- Change SCSI-board and check if latest GS revision level has been installed.
- Change electronics of main module.
- Undo any changes you may have installed. Inform HP Field Service and have trace ready.

If the error occurs sporadically, also try to create a trace using your maintenance PC. Also determine the conditions under which this error occurs.

1. Does the error occur during the boot process? Check FC floppy (using the CHECKDISK-command on the PC). If new FC version is being used, use previous version. Change main module electronics. Change controller PC board.
2. Does the error occur during normal operation? What are the marginal conditions during error occurrence? For example:
   - With or without overlay.
   - Which font was being used.
   - When loading an overlay or font.
   - Copy printing.
   - With which application does the error occur.
   - Did you replace EPROMs or PC boards.
   - Is the error reproducible on another printer with the same upgrades.
3. Is it a sporadic error? Create a trace of the error with your maintenance PC. Use SHOW commands (TRACECMD, RMCMD, TRACERM, RMOBJ) when the error occurs, save it on floppy and pass it on to your product specialist for error recovery.
4. Is the error reproducible? See 2 and 3.

B9.00 Interface Timeout

Error Cause

This error is set by the Functional Code, if the SCSI does not respond to a request within a given period of time. This message may occur when you press START/STOP on the operator panel.

Error Recovery

If the error occurs frequently, reboot printer. During the boot process the proper initialization of the SCSI using your maintenance PC. If rebooting the printer does not solve the problem:

- Change SCSI board or,
- Use a different FC version (for example, a previous version).

BA.00 Channel Check

BA.00 CHANNEL CHECK

Figure 3-187. BA.00 Channel Check

The CSI monitors the hardware communication between the CSI and the channel by means of a parity error checker. In datastreaming mode, a timer also monitors it for data transfer timeout. If one of the described errors occurs only once, the ending status 4A orders a command retry by the CSI sequencer. No status display appears at the printer. If the command retry detects further errors like the ones described above, an "unrecoverable" channel error caused by the channel processor or the IF cable has occurred. The CSI sequencer reports the error with an interrupt and error code to the FC. The FC generates the error display `BA.00 CHANNEL CHECK` and the corresponding sense bytes, which are retrieved by the system.

Error Recovery

- Read out FC trace and CSI trace via LPRD
- Generate dump 1 and then start test 108 in test code
- Run CSI tests (switch over bypass switch, disconnect connector on PCB D536); start test 900 - 910
- Carry out document analysis using the Maintenance Support Document
- Corresponding to the error analysis, replace a CSI PCB or inform PE V 57

BA.01 Communication Error CE

Error Cause

The device electronics (main module) requests a page No. XX from the controller using the command frame PM 02 XX (Page Prep). If the requested page number is not within 01 and 1F, this error is set.

Error Recovery

If the error occurs frequently, proceed as follows:

- Create a trace of the error using your maintenance PC.
- Replace installed operator panel firmware with previous version.
- Use another FC version (previous version).
- Undo any changes you may have installed.
- Inform HP Field Service and have trace ready.

If the error occurs sporadically, also try to create a trace using your maintenance PC. Also determine the conditions under which this error occurs. For example:

- With or without overlay.
- Which font was being used.
- When loading an overlay or font.
- Copy printing.
- With which application does the error occur.
- Did you replace EPROMs or PC boards.
- Is the error reproducible on another printer with the same upgrades.

Create a trace of the error with your maintenance PC. Use SHOW commands (TRACECMD, RMCMD, TRACERM, RMOBJ) when the error occurs, save it on floppy and pass it on to your product specialist for error recovery.

BC.00 Diskette Check

```
BC.00     DISKETTE CHECK
```

Figure 3-188. BC.00 Diskette Check

Status code `BC.00 DISKETTE CHECK` is displayed at the operator panel if one of the following conditions occurs:

- Floppy disk drive not ready
- Wrong floppy inserted
- Floppy cannot be read
- File required by the FC is missing on the floppy

Error Recovery

- Check floppy; insert correct floppy.

BD.00 Diskette Write Protected

```
BD.00      DISKETTE WRITE PROTECTED
```

Figure 3-189. BD.00 Diskette Write Protected

Status code `BD.00 DISKETTE WRITE PROTECTED` is displayed at the operator panel if a command to write on the floppy is issued when the floppy is write-protected.

Error Recovery

- Remove write protection label from floppy

BE.00 CSI Fatal Error

Error Cause

This error is set when the SCSI has not been initialized successfully.

This error may be caused by:

- A missing SCSI file on the FC floppy disk (files of the type SCSI_XXX).
- An unrecognized SCSI board.

This error can only occur during the boot process.

Error Recovery

- Check if FC floppy contains all necessary SCSI files.
- Use previous FC version for test purposes.
- Check SCSI PC board contacts.
- Change SCSI PC board if necessary.

BF.00 CE Fatal Error, Reboot Required

Error Cause

The Functional Code controls itself due to its modular structure.

If during operation the Functional Code recognizes an unplausible condition, this error is set. It may be caused by various factors. The error may occur just once during resource administration, for example fonts or overlays, or a user action causes the error.

For exact details on the error connect maintenance PC to the diagnostic PC board. The resulting information may look as follows:

```
COPYMGR.C>!!!FATAL ERROR;INTERNAL ERROR ID=0X080204
BF.00 CE FATAL ERROR REBOOT REQUIRED
```

The internal ERROR ID shows the defective FC part. See also internal error IDs of controller description.

Error Recovery

Determine the conditions under which this error occurs.

1. Does the error occur during the boot process? Check FC floppy (using the CHECKDISK on the PC). If new FC version is being used, use previous version. Change controller.
2. Does the error occur during normal operation? What are the marginal conditions during error occurrence? For example:
   - With or without overlay.
   - Which font was being used.
   - When loading an overlay or font.
   - Copy printing.
   - With which application does the error occur.
   - Did you replace EPROMs or PC boards.
   - Is the error reproducible on another printer with the same upgrades.
3. Is it a sporadic error? Create a trace of the error with your maintenance PC. Use SHOW command (TRACECMD, RMCMD, TRACERM, RMOBJ) when the error occurs, save it on floppy and pass it on to your product specialist for error recovery.
4. Is the error reproducible? See 2 and 3.

BF.01 CE Fatal Error, Reboot Required

Error Cause

The Functional Code controls itself due to its modular structure.

If during operation the Functional Code recognizes an unplausible condition, this error is set. It may be caused by various factors. The error may occur just once during resource administration, for example fonts or overlays, or a user action causes the error.

For exact details on the error connect maintenance PC to the diagnostic PC board. The resulting information may look as follows:

```
COPYMGR.C>!!!FATAL ERROR;INTERNAL ERROR ID=0X080204
BF.01 CE FATAL ERROR REBOOT REQUIRED
```

The internal ERROR ID shows the defective FC part. See also internal error IDs of controller description.

Error Recovery

Determine the conditions under which this error occurs.

1. Does the error occur during the boot process? Check FC floppy (using the CHECKDISK on the PC). If new FC version is being used, use previous version. Change controller.
2. Does the error occur during normal operation? What are the marginal conditions during error occurrence? For example:
   - With or without overlay.
   - Which font was being used.
   - When loading an overlay or font.
   - Copy printing.
   - With which application does the error occur.
   - Did you replace EPROMs or PC boards.
   - Is the error reproducible on another printer with the same upgrades.
3. Is it a sporadic error? Create a trace of the error with your maintenance PC. Use SHOW command (TRACECMD, RMCMD, TRACERM, RMOBJ) when the error occurs, save it on floppy and pass it on to your product specialist for error recovery.
4. Is the error reproducible? See 2 and 3.

BF.02 CE Fatal Error, Reboot Required

Error Cause

The Functional Code controls itself due to its modular structure.

If during operation the Functional Code recognizes an unplausible condition, this error is set. The error is set when an unpacked GSP-Code is on the FC floppy disk; this may have occurred while copying a previous GSP-Version onto the FC floppy disk. This error can only occur during the boot process.

Error Recovery

Request released FC from HP Field Service.

C0.02 Code Checksum Error

Error Cause

The Firmware LIP.RUN controls itself by checking a socalled Checksum. If the expected checksum is not obtained, this error is set. It may be caused by erroneous Hardware (controller) or erroneous Firmware.

Error Recovery

1. If the error occurs constantly during the boot process, proceed as follows:
   - Create a trace of the error using your maintenance PC.
   - Use another FC version (previous version).
   - Change LIP2 controller.
   - Undo any changes you may have installed.
   - Inform HP Field Service and have trace ready.
2. If the error occurs sporadically, also try to create a trace using your maintenance PC. Also determine the conditions under which this error occurs. For example:
   - With or without overlay.
   - Which font was being used.
   - Copy printing.
   - With which application does the error occur.
   - Did you replace EPROMs or PC boards.
   - Is the error reproducible on another printer with the same upgrades.
3. Is it a sporadic error? Create a trace of the error with your maintenance PC. Use SHOW commands (TRACECMD, RMCMD, TRACERM, RMOBJ) when the error occurs, save it on floppy and pass it on to your product specialist for error recovery.
4. If the error occurs sporadically reboot the printer in any case and check print output for lost data or irregularities.

C0.03 Code Checksum Error

Error Cause

The Firmware GSP.RUN controls itself by checking a socalled Checksum. If the expected checksum is not obtained, this error is set. It may be caused by erroneous Hardware (controller) or erroneous Firmware. This error can only occur during the boot process.

Error Recovery

1. If the error persists, proceed as follows:
   - Create a trace of the error using your maintenance PC.
   - Use another FC version (previous version).
   - Change LIP2 controller or GSP memory modules.
   - Undo any changes you may have installed.
   - Inform HP Field Service and have trace ready.
2. If the error occurs sporadically, also try to create a trace using your maintenance PC. Also determine the conditions under which this error occurs. For example:
   - With or without overlay.
   - Which font was being used.
   - Copy printing.
   - With which application does the error occur.
   - Did you replace EPROMs or PC boards.
   - Is the error reproducible on another printer with the same upgrades.
3. Is it a sporadic error? Create a trace of the error with your maintenance PC. Use SHOW commands (TRACECMD, RMCMD, TRACERM, RMOBJ) when the error occurs, save it on floppy and pass it on to your product specialist for error recovery.
4. If the error occurs sporadically reboot the printer in any case and check print output for lost data or irregularities.

C1.01 GSP Load Fail

Error Cause

The Firmware GSP.RUN could not be loaded (incorrect code format).

It may be caused by erroneous Hardware (controller) or erroneous Firmware. This error can only occur during the boot process.

Error Recovery

1. If the error persists, proceed as follows.
    - Create a trace of the error using your maintenance PC.
    - Use another FC version (previous version).
    - Change LIP2 controller.
    - Undo any changes you may have installed.
    - Inform HP Field Service and have trace ready.
    - Is the error reproducible on another printer with the same upgrades.
2. If the error occurs sporadically, also try to create a trace using your maintenance PC. Also determine the conditions under which this error occurs.
3. Create a trace of the error with your maintenance PC. Use SHOW commands (TRACECMD, RMCMD, TRACERM, RMOBJ) when the error occurs, save it on floppy and pass it on to your product specialist for error recovery.

C2 Decompression Error

Error Cause

During image decompression an error has occurred. The printer changes to stop condition; print the defective page by pressing START.

Error Recovery

Check scan direction of image creation or byte sequence of recording.

C3 Series Errors

- C3.00 Raster Module Fatal Error
- C3.01 Timeout at Host Interface
- C3.02 Asynchronous Buffer Allocation Failed
- C3.03 Invalid Meta Command
- C3.04 Data Stack Under- or Overflow
- C3.05 Illegal Opcode

Error Cause

These errors can generally not be reproduced and they may occur at any time. They may also be follow-up errors evaluated by the GSP.

Error Recovery

If one of the above errors occurs, enter SHOW COMMANDS (RMCMD, TRACERM, RMOBJ) on your maintenance PC in accordance with the HP Field Service.

DX.00 Error Group

D0.00	OVERLAY BUFFER ERROR
D1.00	SEGMENT BUFFER ERROR
D2.00	OVERLAY FONT MISSING
D3.00	COPY CONTROL ERROR
D4.00	FONT MANAGEMENT ERROR
D5.00	PAGE CONTROL ERROR
D6.00	F-CODE ERROR

Figure 3-190. BX.00 Error Group

The DX.00 error group indicates errors that are detected by the FC internal monitoring. These errors usually cannot be recovered by changing PCBs.

Error Recovery

- Set printer offline and disable
- Generate dump (dump 2)
- Load test code
- Start print test 108 (trace buffer)
- Find out how error can be reproduced (certain job, marginal conditions, etc.)
- Inform PE V 57

D0.00 Volume Write Protect

Error Cause

This error is set, if you tried to save the errolog file on a write-protected FC floppy disk (boot floppy). The errorlog file is saved on the FC floppy disk, when 110 errors have occurred.

Error Recovery

Either remove write protection or insert a different floppy disk.

D1.00 Volume Full

Error Cause

This error is set, if you tried to save the errolog file on a FC floppy disk (boot floppy) with insufficient memory. The errorlog file is saved on the FC floppy disk, when 110 errors have occurred.

Error Recovery

Either delete one or several unnecessary files or insert a different floppy disk.

D2.00 Too Many Files

Error Cause

This error is set, if you tried to save the errorlog file on a FC floppy disk (boot floppy), on which there are already 224 files in the root directory. No more than 224 files are allowed within the root directory. The errorlog file is saved on the FC floppy disk, when 110 errors have occurred.

Error Recovery

Either delete one or several unnecessary files or insert a different floppy disk.

D7.00 DE Protocol Error

D7.00	DE PROTOKOLL ERROR

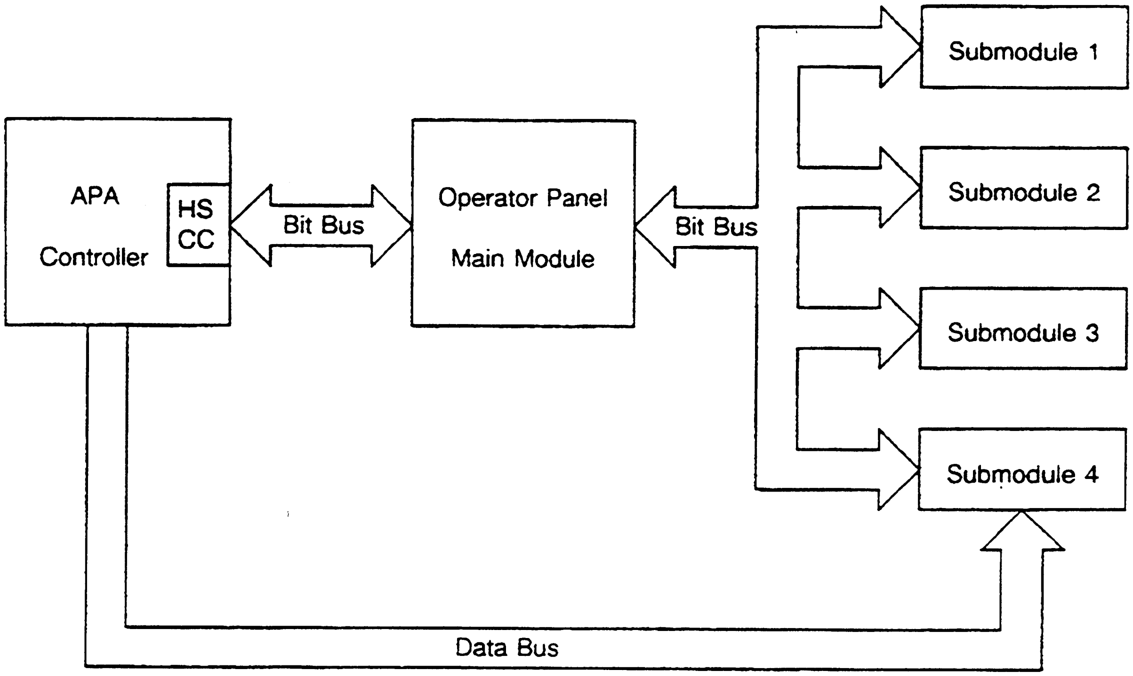

APA
Controller
HS
CC
Bit Bus
Operator Panel
Main Module
Bit Bus
Submodule 1
Submodule 2
Submodule 3
Submodule 4
Data Bus

Figure 3-191. D7.00 DE Protocol Error

General

Communication between the controller and the device electronics is established via a serial interface (bit bus). If the controller expects a response from the device electronics, the error is set when the response does not arrive.

W.0C Special Fusing

```
SPECIAL FUSING     (W.0C)
```

Figure 3-192. W.0C Special Fusing

Error Byte: 03/20 not yet realized

An increased or decreased fuser roller temperature is set at the operator panel.

W.11 LED Adjust Running

LED ADJUST RUNNING (W.11)

Figure 3-193. W.11 LED Adjust Running

Error Byte: 27/01

LED Adjustment in Progress Longer Than 5 Minutes

The quality of the exposure unit is checked during the preparation phase. If an alignment is necessary to optimize the LED array, the warning `W.11 LED ADJUST RUNNING` is displayed at the operator panel. Do not open any printer doors or perform any other operations during the alignment process.

W.12 Improper LED Array

IMPROPER LED ARRAY (W.12)

Figure 3-194. W.12 Improper LED Array

Error Byte: 27/02

One or Several LEDs Defective

During the alignment of the exposure unit, diodes that could not be brought to the required illumination range have been detected. The customer engineer must clean the LED array and perform a new alignment. If the warning `W.12 IMPROPER LED ARRAY` is set again, exchange the LED array.

Troubleshooting LED Array Print Quality Problems

The structure and function of the LED array is independent of the print resolution, and the type of printer (F100 or F135).

The print error samples illustrated in this section have been enlarged to better show typical print quality problems. A "ruler" is included with each to aid as a scaling factor.

Caution Observe all ESD good practice procedures when working with the LED array.

Also, observe the following guidelines when returning a defective LED array:

- Attach a completed repair tag to the LED array.
- Include any print samples that indicate a print quality problem.
- Re-use original packaging material to return the defective LED array.

Printer Specific LED Array Variations

Print Resolution	**F135 (300 dpi)**	**F100 (300 dpi)**
Modules	6	5
ICs/Module	14	14
LEDs/IC	64	64

The LED array has a module structure. Each module consists of 4 latches with 16 LEDs each. Refer to Figure 3-195 for an illustration of a typical LED array layout (240 dpi shown).

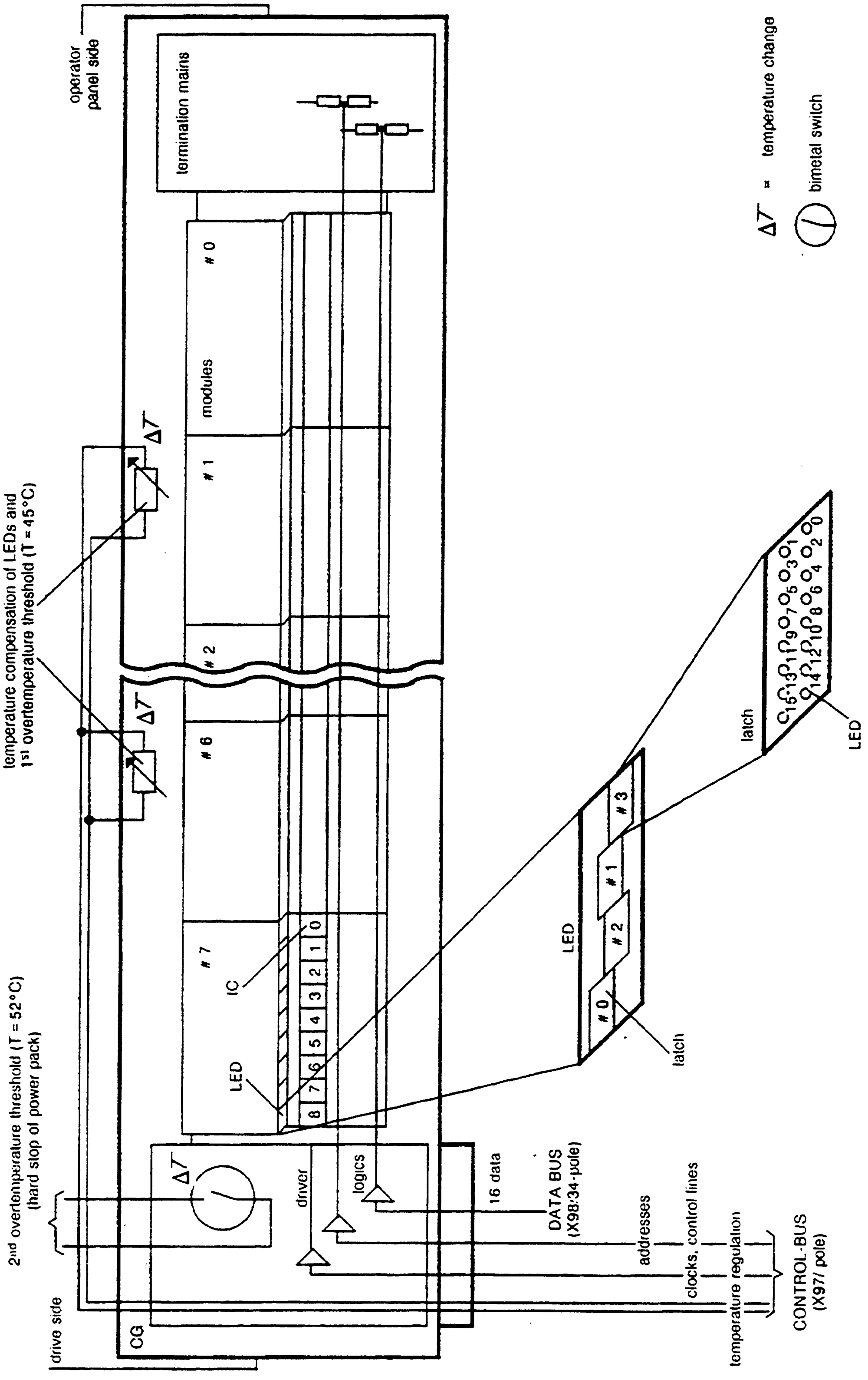

operator panel side
termination mains
modules
# 0
# 1
# 2
# 6
# 7
temperature compensation of LEDs and 1st overtemperature threshold (T = 45°C)
ΔT
ΔT
2nd overtemperature threshold (T = 52°C) (hard stop of power pack)
ΔT
IC
LED
8 7 6 5 4 3 2 1 0
CG
drive side
driver
logics
16 data
DATA BUS (X98:34-pole)
addresses
clocks, control lines
temperature regulation
CONTROL-BUS (X97/ pole)
LED
# 0
# 1
# 2
# 3
latch
latch
15 13 11 9 7 5 3 1
14 12 10 8 6 4 2 0
LED
ΔT = temperature change
bimetal switch

Figure 3-195. Typical LED Array Layout (240 dpi shown)

Printer Specific Toner Mark Position and Width

To print the toner mark (TM), an exactly defined area of the LED array must be addressed.

Printer Resolution	Toner Position	Toner Mark Width
F135 (300 dpi)	Start IC No. 3[1]	0.5 IC
F100 (300 dpi)	Start IC No. 3[1]	0.5 IC

[1] Toner mark has this position only if Horizontal Shift = 0.

Refer to Figure 3-195 to see how modules and ICs are counted.

Make Your Own Ruler

The LED array is a Field Replaceable Unit (FRU); individual modules and ICs cannot be replaced. However, the structure of the LED array allows it to offer indications about weather a print problem is LED related or not.

Make a temporary ruler by printing a sample of Submodule Print. On this printout, mark modules as shown in Figure 3-196.

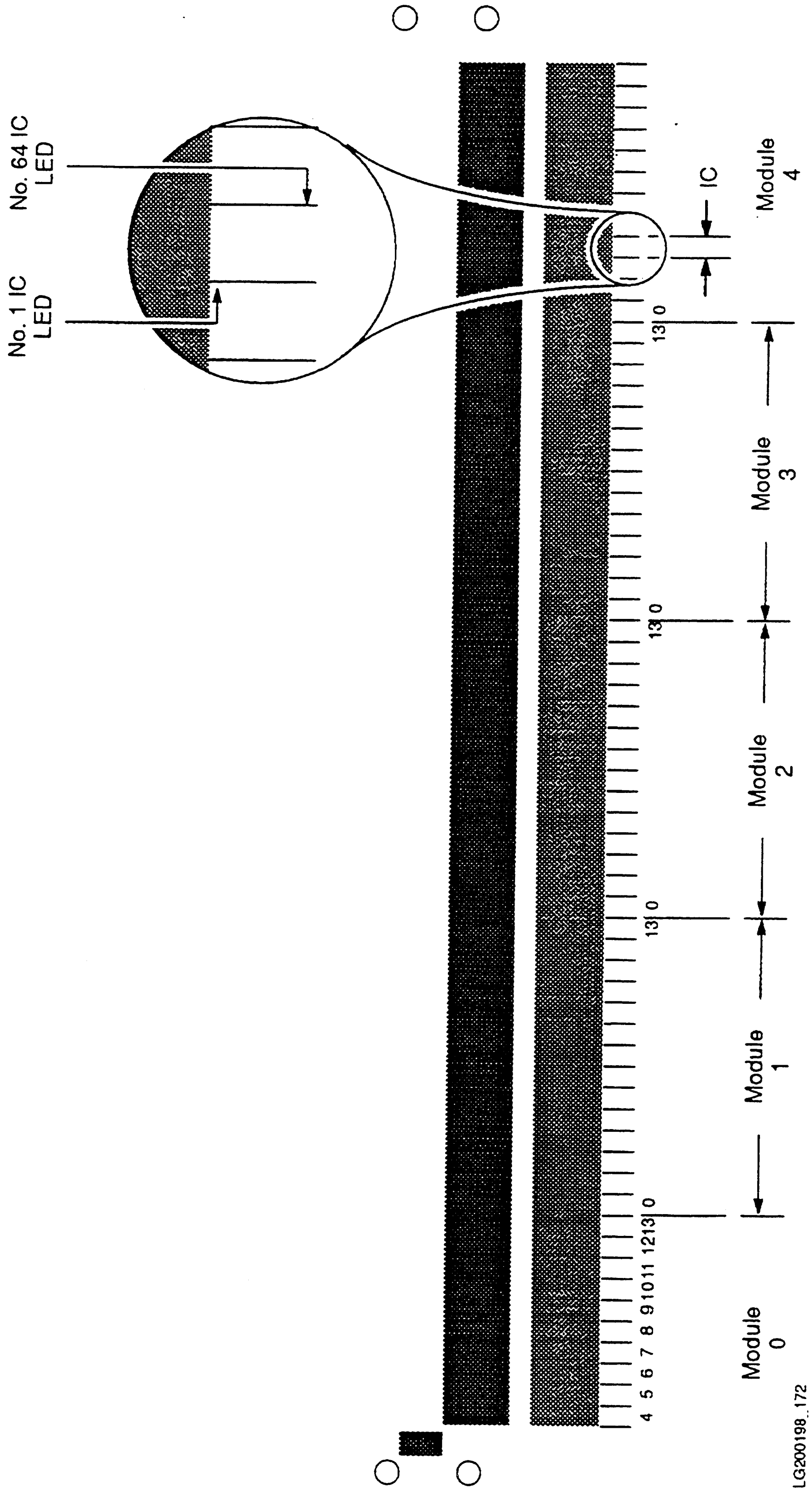

No. 64 IC
LED
No. 1 IC
LED
IC
Module
4
13 0
Module
3
13 0
Module
2
13 0
Module
1
4 5 6 7 8 9 10 11 12 13 0
Module
0
LG200198_172

Figure 3-196. Submodule Print Sample Marked as a Ruler

Diagnosing Print Samples

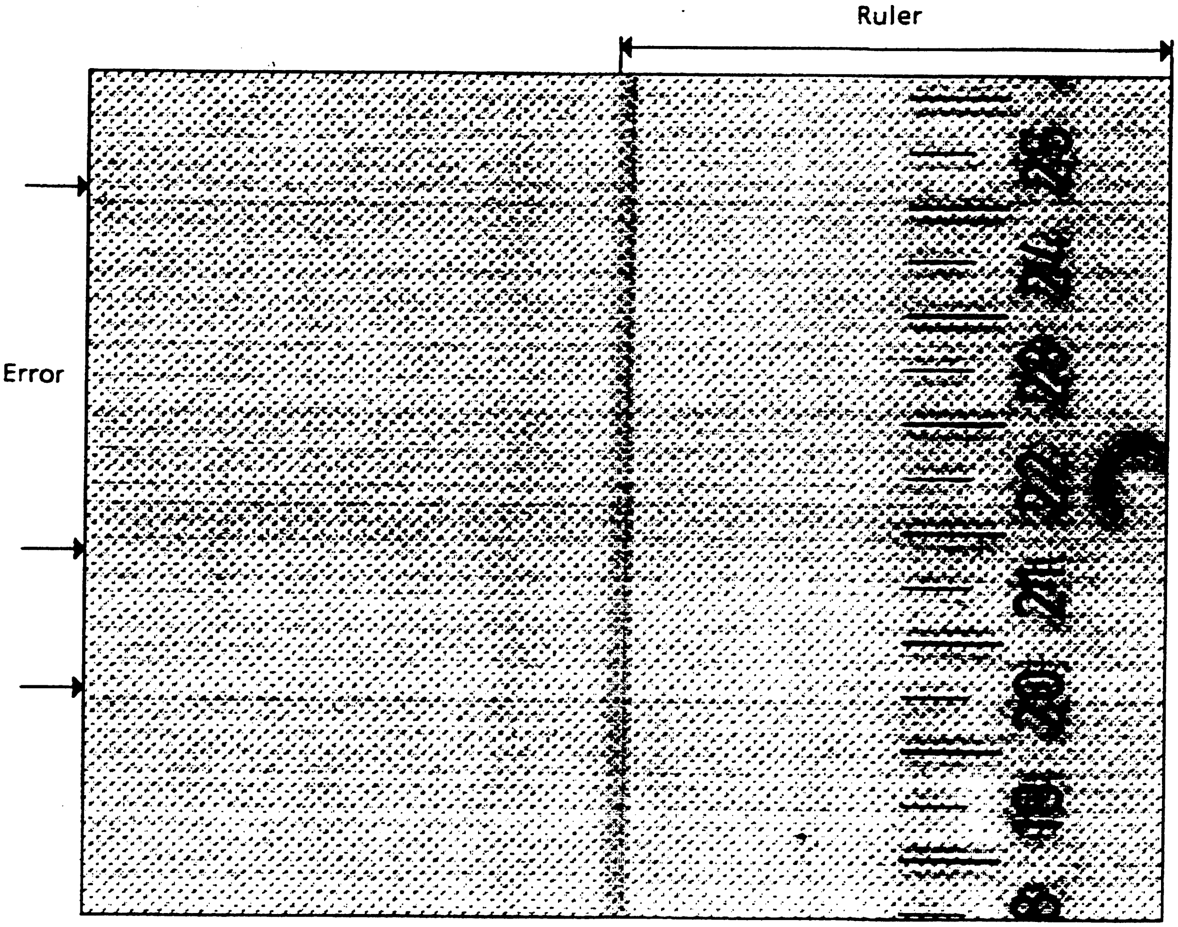
To diagnose print samples, different print patterns are necessary. In most cases a submodule print or a 50% raster print is best.

To determine the type of failure, first set Horizontal Shift to 0 and make a sample printout(s). Measure the printouts(s) using the ruler described in the previous paragraph, by aligning the toner mark on the ruler over the toner mark on the printout(s).

Next, isolate the print problem by comparing the printout from the faulty printer with the following print samples. Once a match is found, follow the recommended corrective procedure that accompanies that print sample.

Print Samples

Print Sample 1



← Paper path direction

Figure 3-197. Print Sample 1

Failure Description

Diffuse lighter or darker stripes in paper path direction.

Causes

Corotron, developer, PC drum.

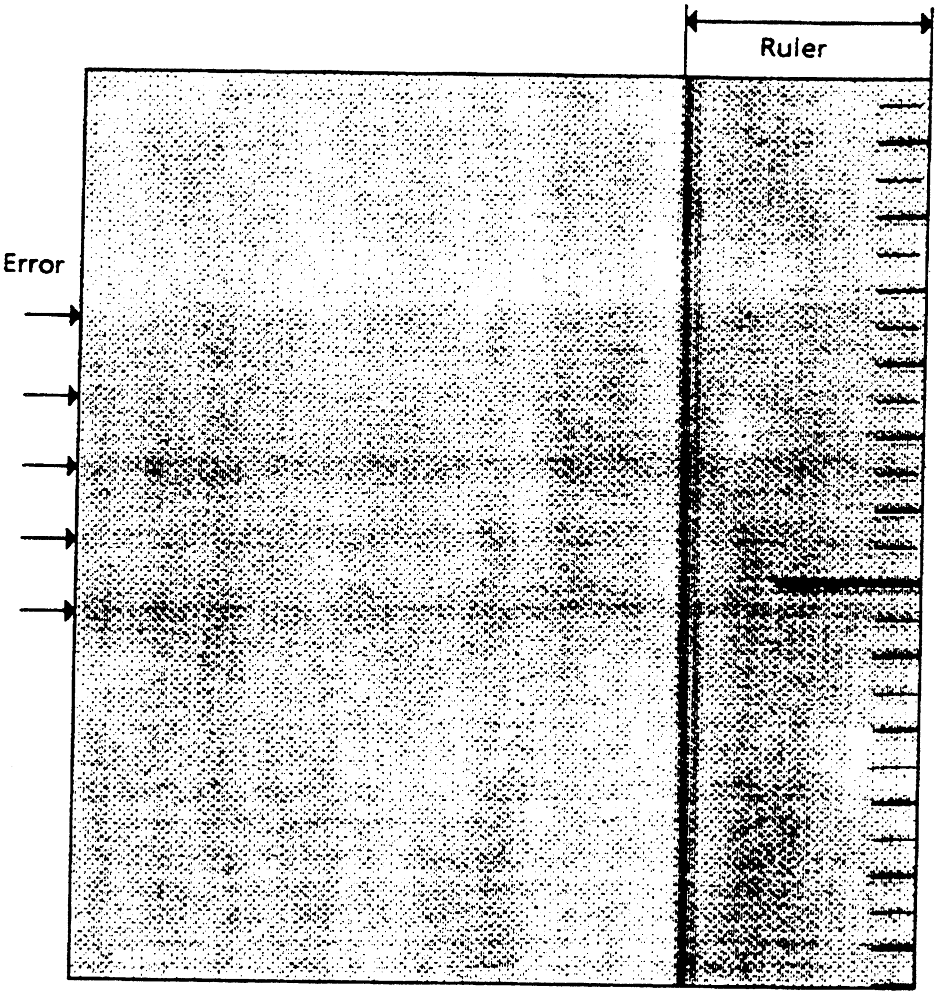
Certainty of Diagnosis

Not the LED array.

Corrective Procedure

Check corotrons, developer, developer station, and PC drum; replace as necessary.

Print Sample 2


Ruler
Error

← Paper path direction

Figure 3-198. Print Sample 2

Failure Description

Diffuse lighter or darker stripes in paper path direction.

Causes

Corotron, developer, PC drum.

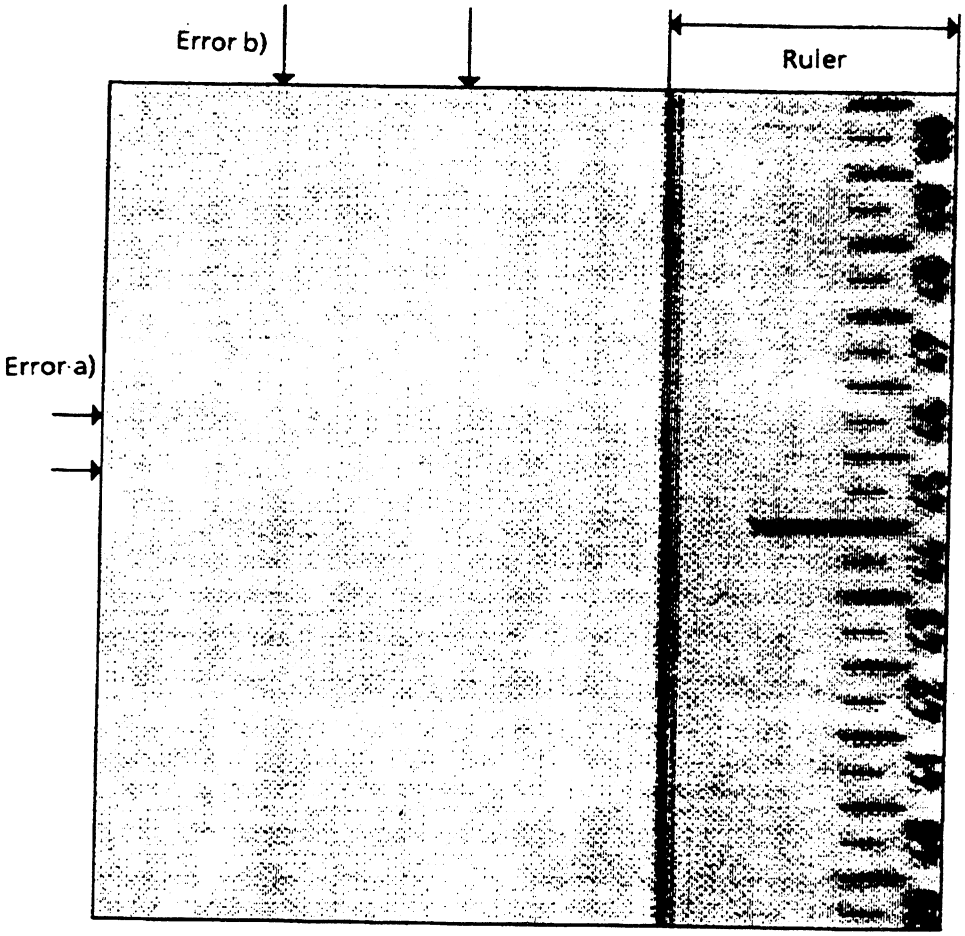
Certainty of Diagnosis

Not the LED array.

Corrective Procedure

Check corotrons, developer, developer station, and PC drum; replace as necessary.

Print Sample 3


Error b)
Ruler
Error a)

← Paper path direction

Figure 3-199. Print Sample 3

Failure Description

a. Diffuse lighter or darker stripes in paper path direction.

b. Diffuse lighter or darker stripes across paper path direction.

Causes

a. Corotron, developer, PC drum.

b. Unregular paper movement.

Certainty of Diagnosis

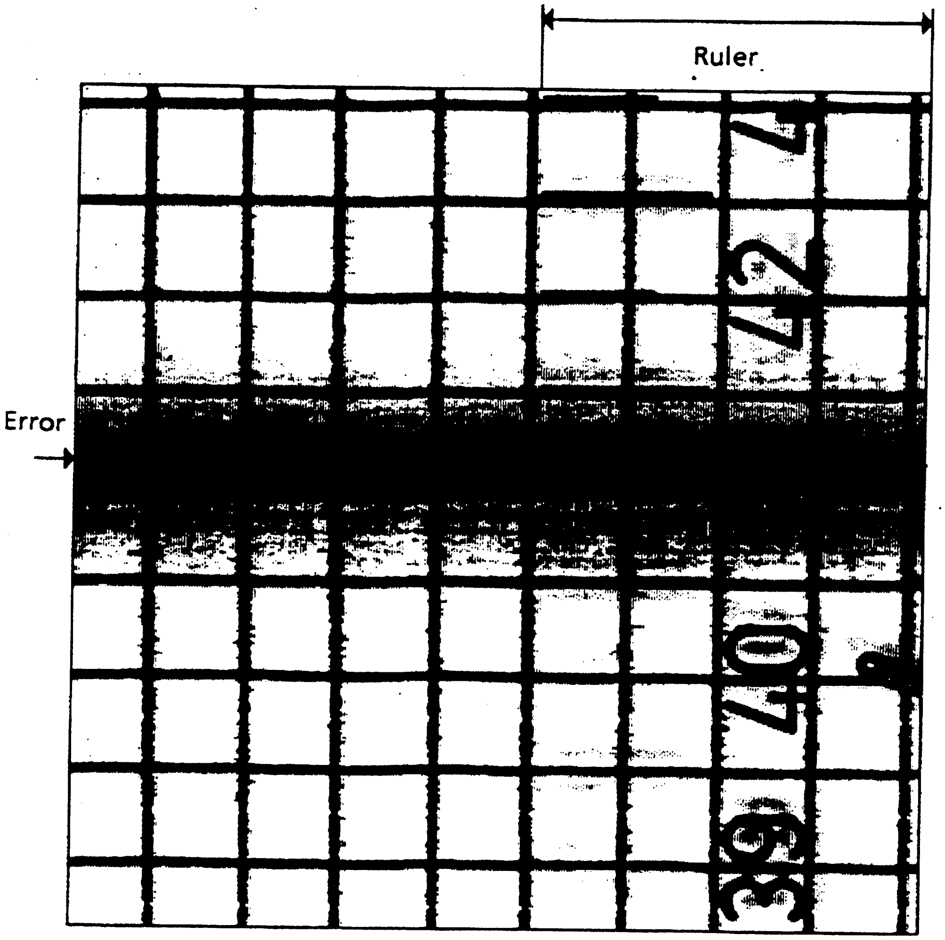
Not the LED array.

Corrective Procedure

a. Check corotrons, developer, developer station, and PC drum; replace as necessary.

b. Drive belts.

Print Sample 4


Ruler
Error
27
272
207
39

← Paper path direction

Figure 3-200. Print Sample 4

Failure Description

Diffuse lighter or darker stripes in paper path direction.

Causes

Soiled PC drum, defective cleaning station.

Certainty of Diagnosis

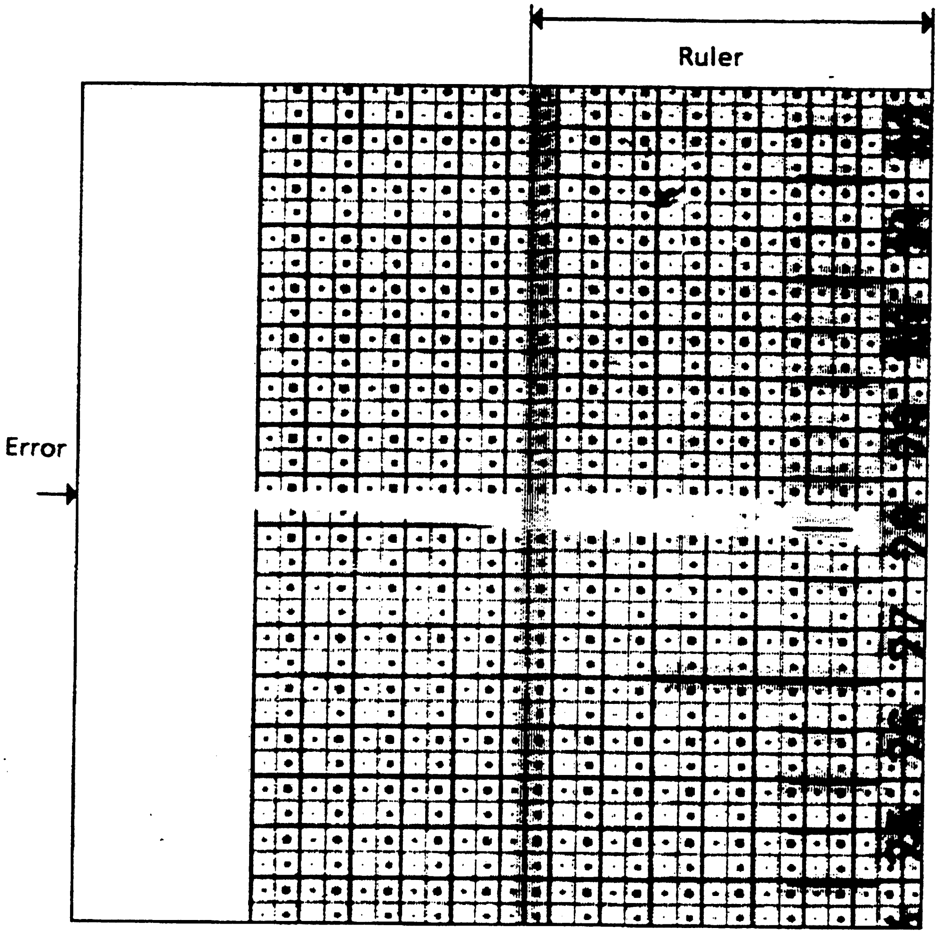
Not the LED array.

Corrective Procedure

a. Clean PC drum; replace if necessary.

b. Clean brushing cleaning station, check cleaning brush; replace if necessary.

Print Sample 5


Ruler
Error

← Paper path direction

Figure 3-201. Print Sample 5

Failure Description

Loss of print, well focused but with changing width in paper path direction.

Causes

a. Fuser roller, if error recurs every 314 mm (12.36 in) in paper path direction.

b. PC drum, if error recurs every 761 mm (30 in) in paper path direction.

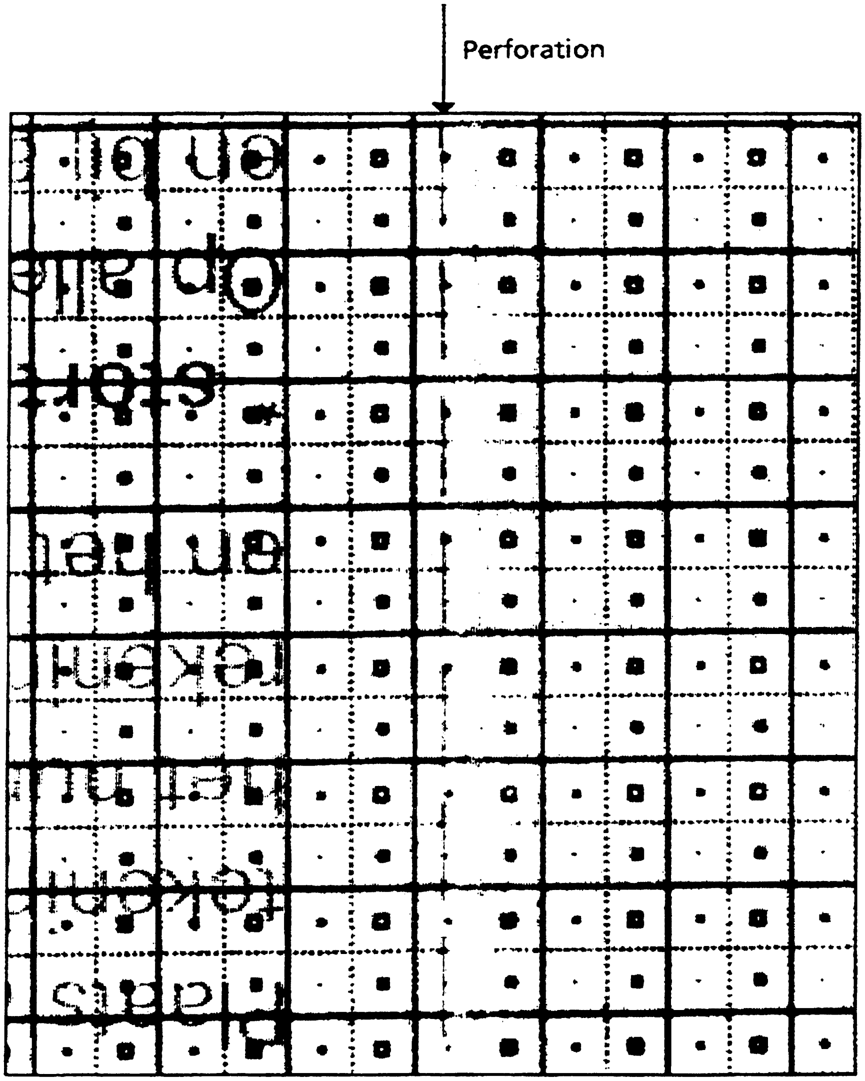
Certainty of Diagnosis

Not the LED array.

Corrective Procedure

Check PC drum and fuser roller; replace if necessary.

Print Sample 6



← Paper path direction

Figure 3-202. Print Sample 6 (Special punched, preprinted forms etc.)

Failure Description

Loss of print, weak print.

Causes

Unevenness in the area of a perforation (see arrow in Figure 3-202).

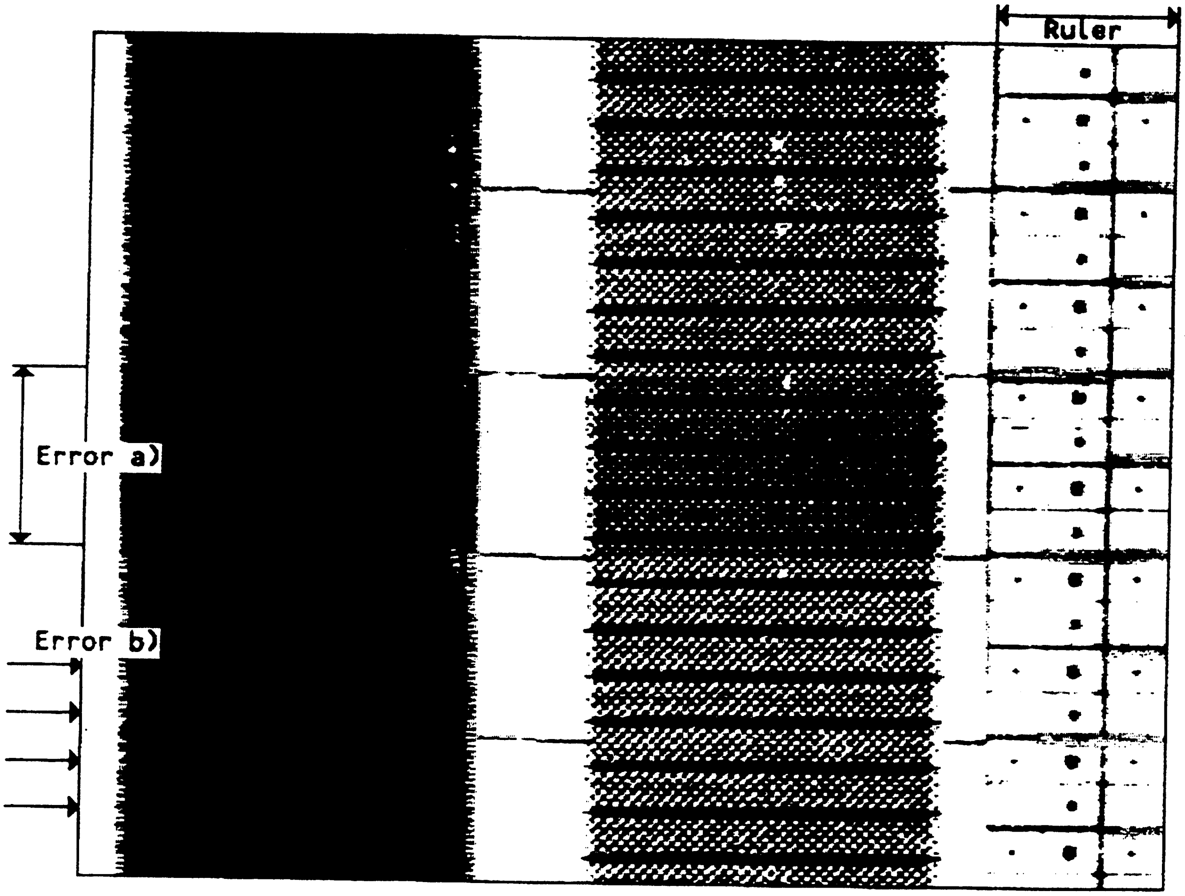
Certainty of Diagnosis

Not a printer failure.

Corrective Procedure

No procedure appropriate to the printer.

Print Sample 7


Ruler
Error a)
Error b)

← Paper path direction

Figure 3-203. Print Sample 7

Failure Description

a. Darker raster print congruent with IC limits

b. Black lines in print area; distance 1/4 IC (1 latch = 16 LEDs).

Cause

Short circuit on interbus.

Certainty of Diagnosis

Ambiguous failure.

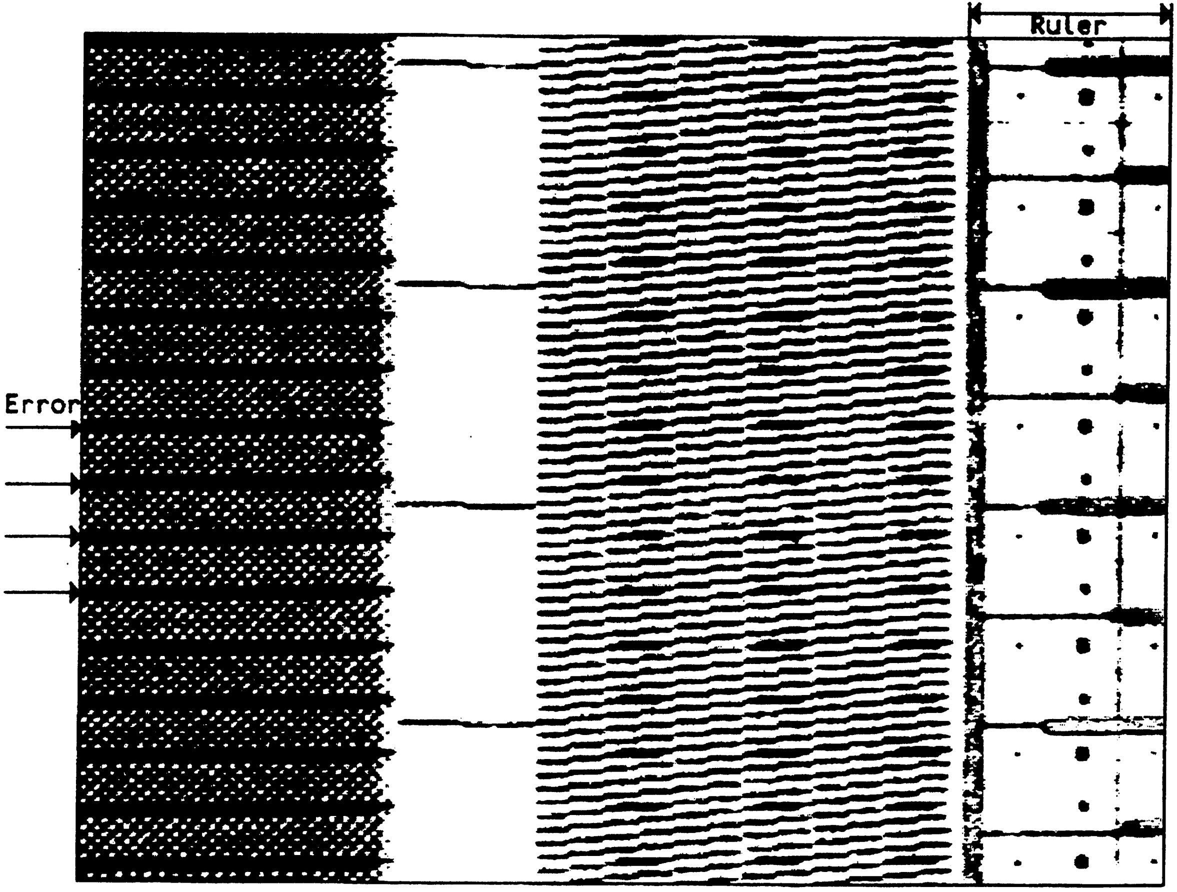
Corrective Procedure

a. Check cable. Swap data cable for address cable.

b. Replace PCB ZGS**.

c. Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 8


Ruler
Error

← Paper path direction

Figure 3-204. Print Sample 8

Failure Description

Black lines in print area; distance 1/4 IC (1 latch = 16 LEDs).

Cause

Short circuit on interbus.

Certainty of Diagnosis

Ambiguous failure.

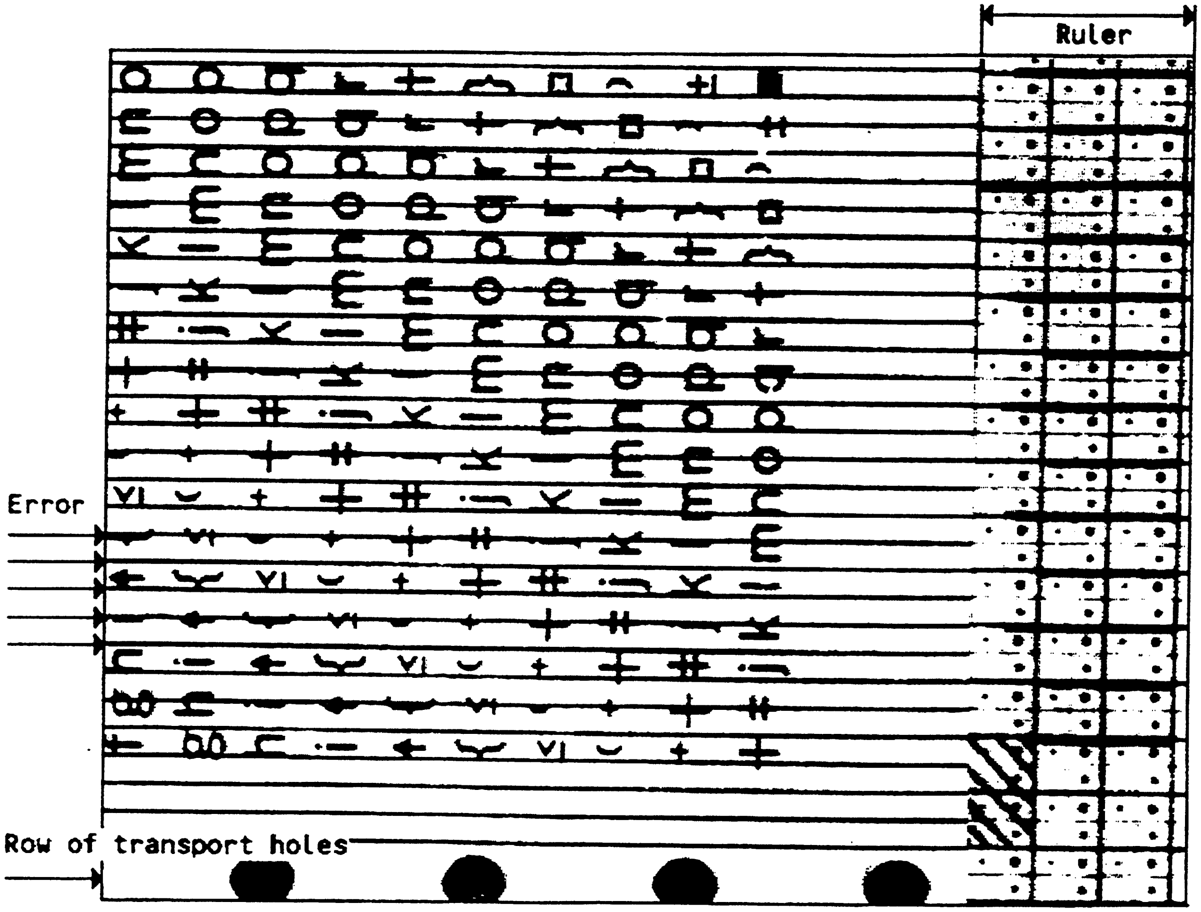
Corrective Procedure

a. Check cable. Swap data cable for address cable.

b. Replace PCB ZGS**.

c. Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 9


Ruler
Error
Row of transport holes

← Paper path direction

Figure 3-205. Print Sample 9

Failure Description

Black lines in 1/4 IC (1 latch = 16 LEDs) distance over complete length of LED array, also in areas where nothing is printed.

Cause

Cable, and PC boards, but unlikely LED array.

Certainty of Diagnosis

Ambiguous failure.

Corrective Procedure

a. Check cable. Swap data bus cable for control bus cable.

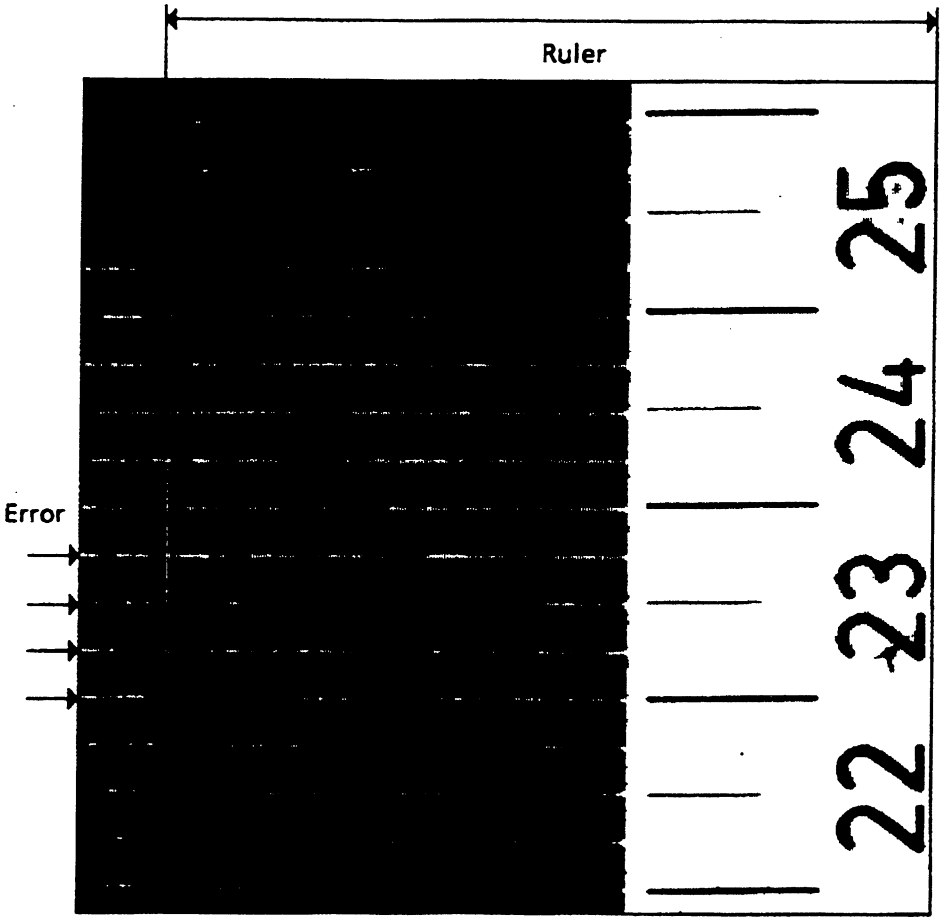
b. Check platter for bent pins.

c. Replace PCB ZGS**.

d. Replace PCB TLA**.

e. Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 10


Ruler
Error
22
23
24
25

← Paper path direction

Figure 3-206. Print Sample 10

Failure Description

Bright lines (2 LEDs wide) in 1/4 IC (1 latch = 16 LEDs) distance in paper path direction over complete length of LED array.

Cause

Cable, and PC boards, but unlikely LED array.

Certainty of Diagnosis

Ambiguous failure. If failure starts from the front side of the printer, but not over the complete length of the LED array, then the array is defective.

Corrective Procedure

a. Check cable. Swap data bus cable for control bus cable.

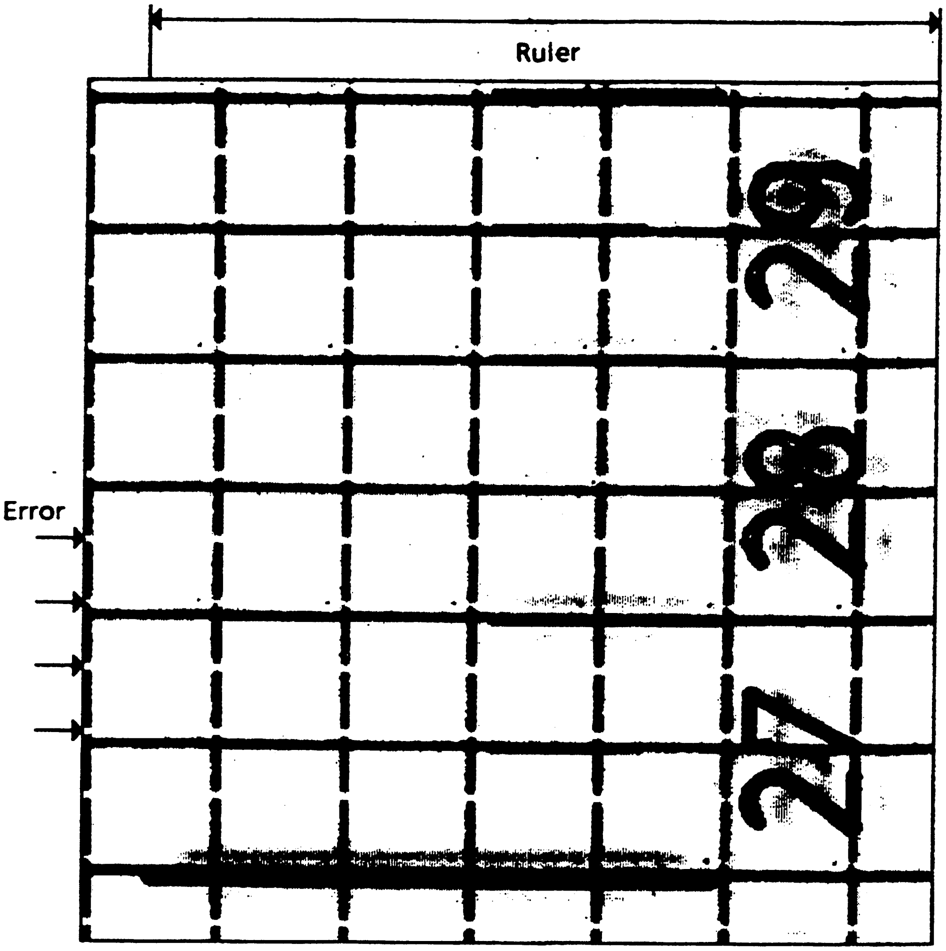
b. Check platter for bent pins.

c. Replace PCB ZGS**.

d. Replace PCB TLA**.

e. Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 11


Ruler
Error
29
28
27

← Paper path direction

Figure 3-207. Print Sample 11

Failure Description

Loss of print (2 LEDs wide) repeated 1/4 IC (1 latch = 16 LEDs) over complete length of LED array.

Cause

a. Short circuit on data bus.

b. Cable, and PC boards, but unlikely LED array.

Certainty of Diagnosis

Ambiguous failure. If failure starts from the front side of the printer, but not over the complete length of the LED array, then the array is defective.

Corrective Procedure

a. Check cable. Swap data bus cable for control bus cable.

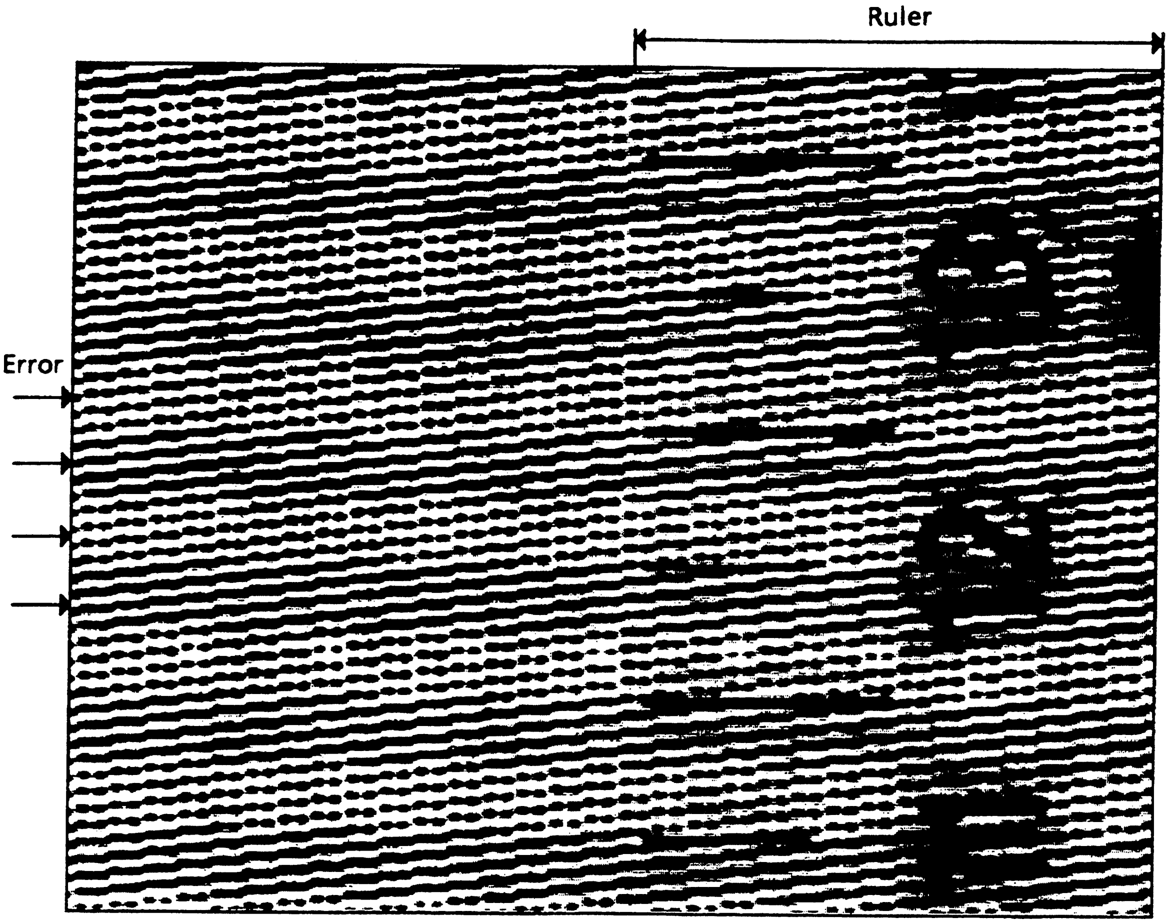
b. Check platter for bent pins.

c. Replace PCB ZGS**.

d. Replace PCB TLA**.

e. Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 12


Ruler
Error

← Paper path direction

Figure 3-208. Print Sample 12

Failure Description

Continuously repeated bright and dark stripes one latch wide (1/4 IC).

Cause

a. PC board.

b. LED array.

Certainty of Diagnosis

Ambiguous failure.

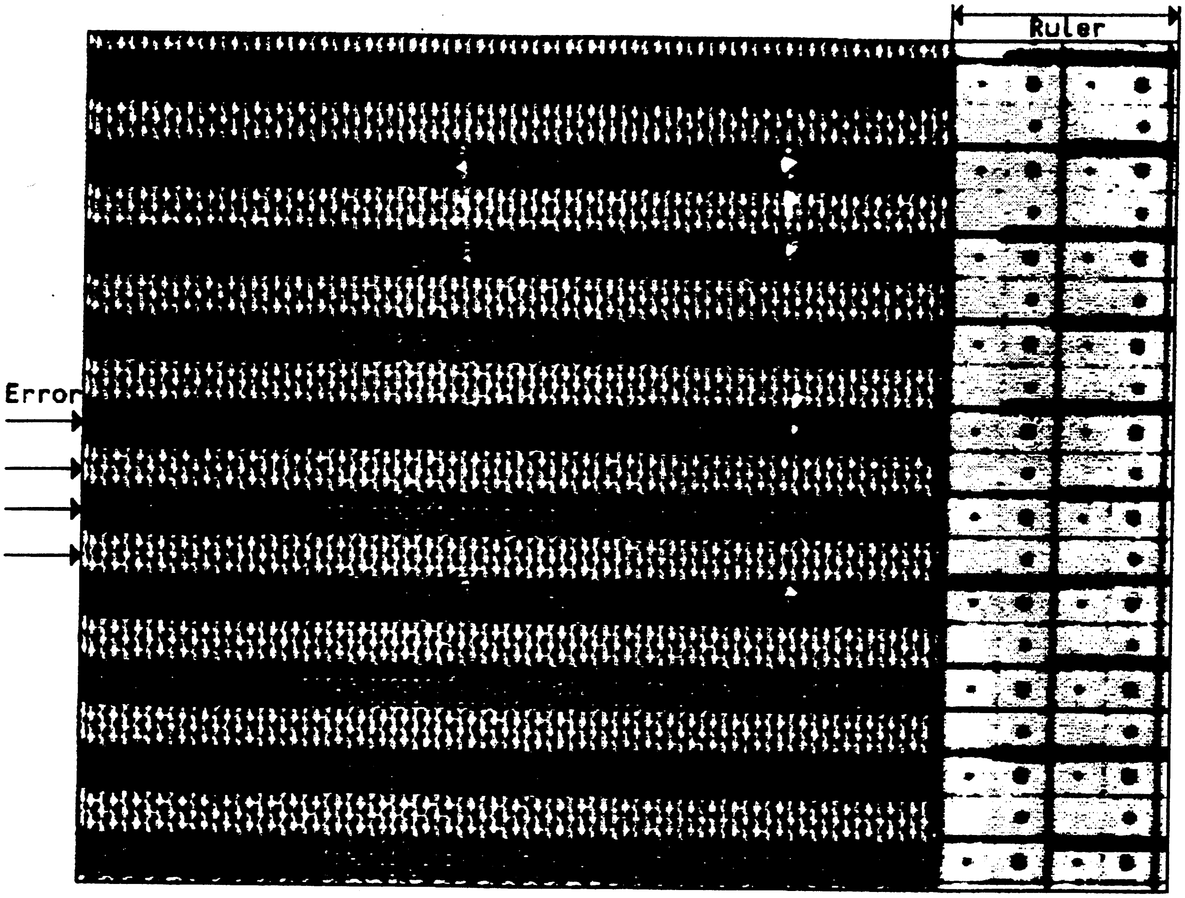
Corrective Procedure

a. Replace PCB ZGS**.

b. Perform automatic alignment if it is activated.

c. Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 13


Ruler
Error

← Paper path direction

Figure 3-209. Print Sample 13

Failure Description

Continuously repeated bright and dark stripes one latch wide (1/4 IC).

Cause

a. PC board.

b. LED array.

Certainty of Diagnosis

Ambiguous failure.

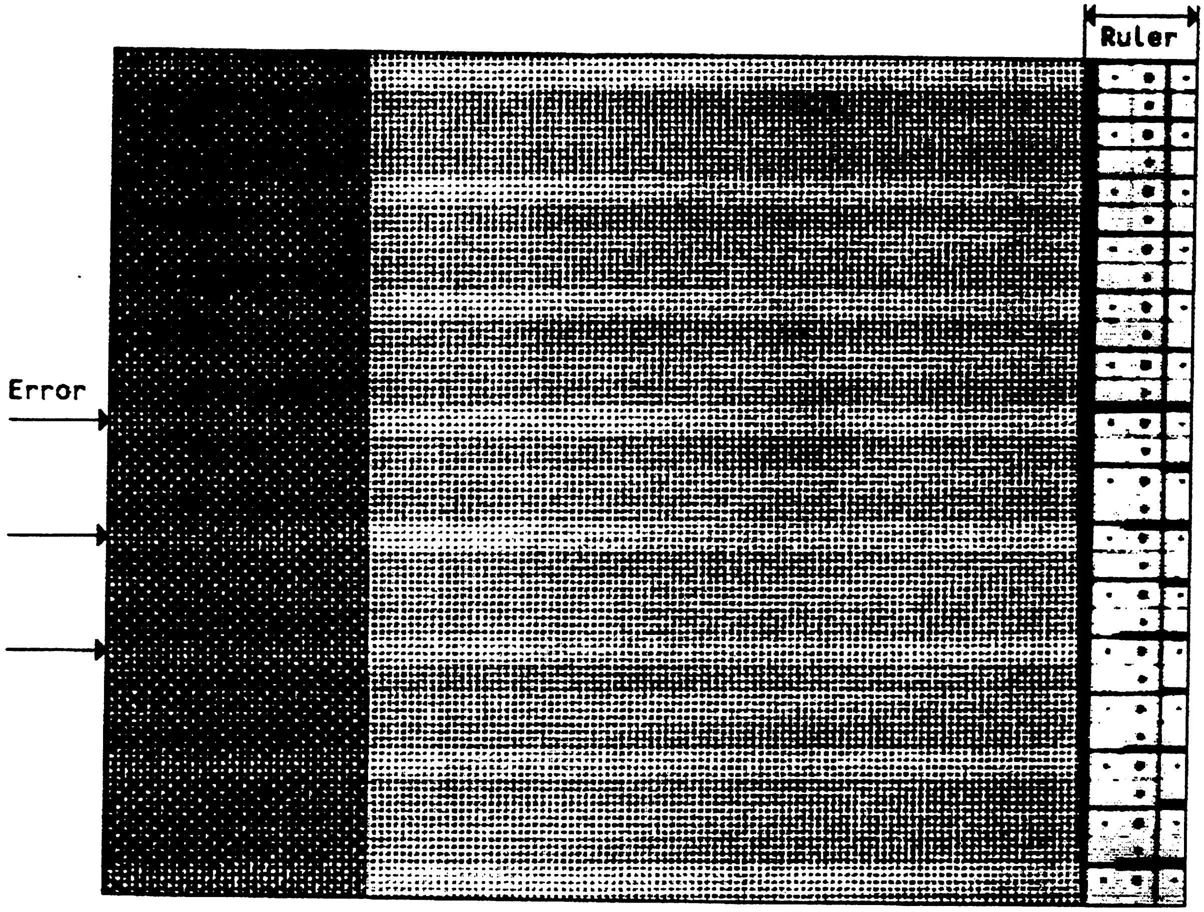
Corrective Procedure

a. Replace PCB ZGS**.

b. Perform automatic alignment if it is activated.

c. Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 14


Ruler
Error

← Paper path direction

Figure 3-210. Print Sample 14

Failure Description

Well focused bright stripes in raster print 1 latch (1/4 IC) wide.

Cause

Short circuit in interbus.

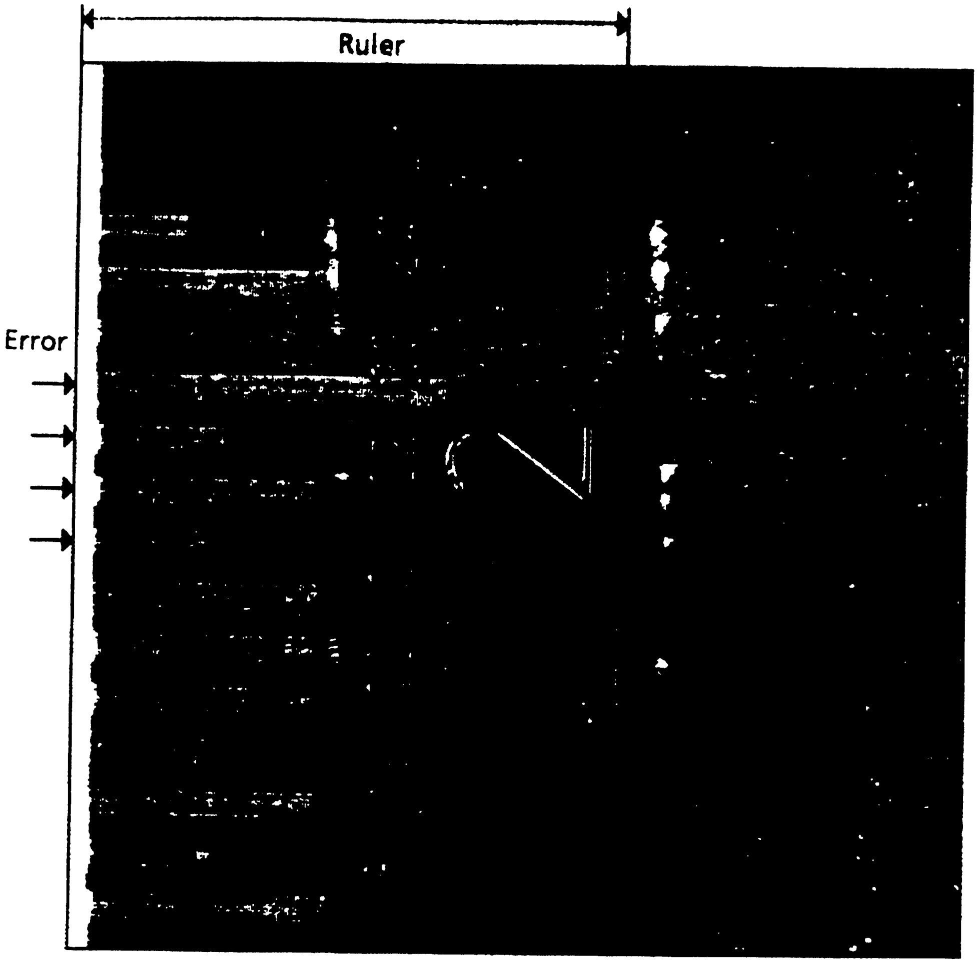
Certainty of Diagnosis

Ambiguous failure.

Corrective Procedure

a. Check cable. Swap data bus cable for control bus cable.
b. Check platter for bent pins.
c. Replace PCB ZGS**.
d. Replace PCB TLA**.
e. Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 15


Ruler
Error

← Paper path direction

Figure 3-211. Print Sample 15

Failure Description

Well focused bright stripes 1 latch (1/4 IC) wide.

Cause

Data bus, or PC boards, but unlikely the LED array.

Certainty of Diagnosis

Ambiguous failure.

Corrective Procedure

a. Check cable. Swap data bus cable for control bus cable.

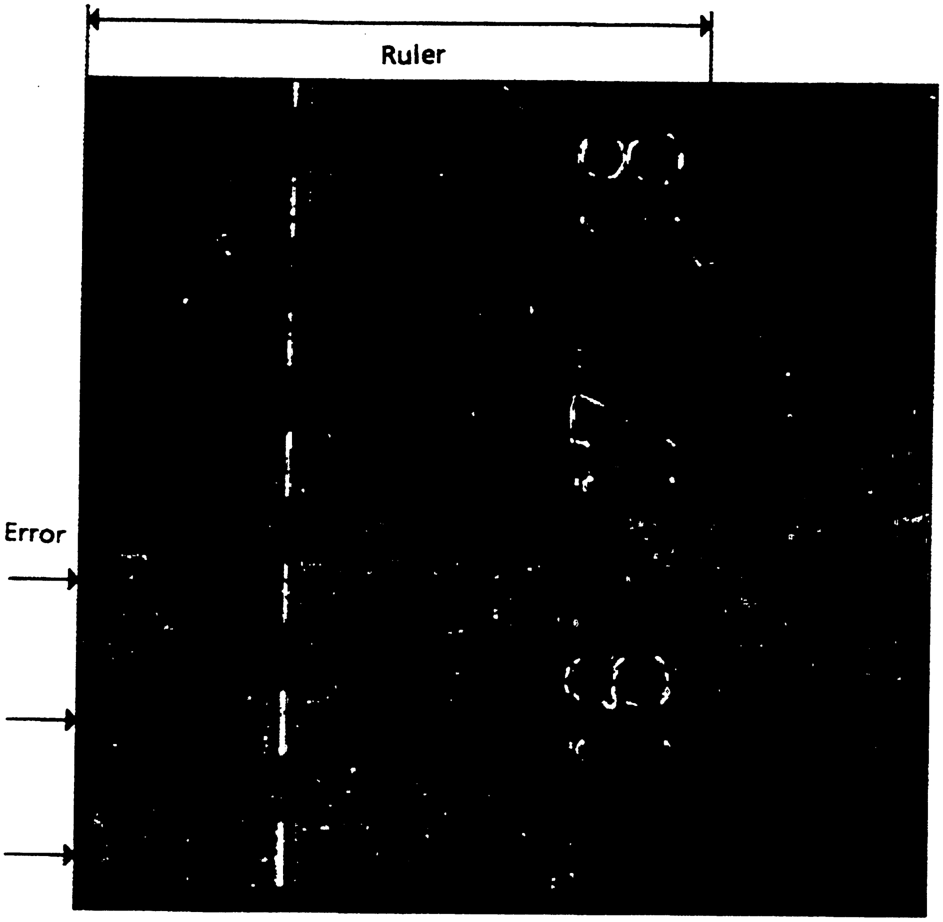
b. Check platter for bent pins.

c. Replace PCB ZGS**.

d. Replace PCB TLA**.

e. Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 16


Ruler
Error

← Paper path direction

Figure 3-212. Print Sample 16

Failure Description

Well focused 1 latch (1/4 IC) wide loss of print in print area.

Cause

Data bus, or PC boards, but unlikely the LED array.

Certainty of Diagnosis

Ambiguous failure.

Corrective Procedure

a. Check cable. Swap data cable for control bus cable.

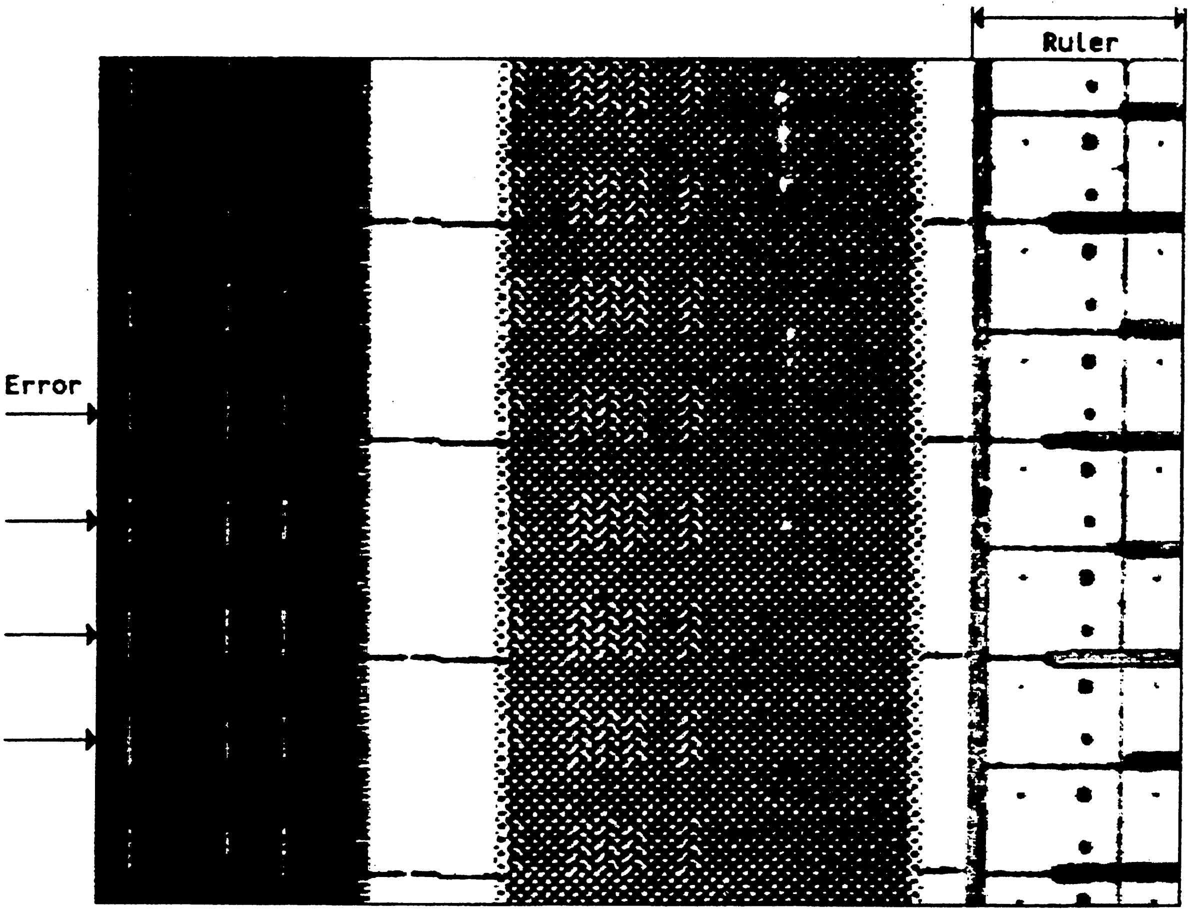
b. Check platter for bent pins.

c. Replace PCB ZGS**.

d. Replace PCB TLA**.

e. Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 17


Ruler
Error

← Paper path direction

Figure 3-213. Print Sample 17

Failure Description

Well focused 1 latch (1/4 IC) wide loss of print in print area.

Cause

Data bus, or PC boards, but unlikely the LED array.

Certainty of Diagnosis

Ambiguous failure.

Corrective Procedure

a. Check cable. Swap data bus cable for control bus cable.

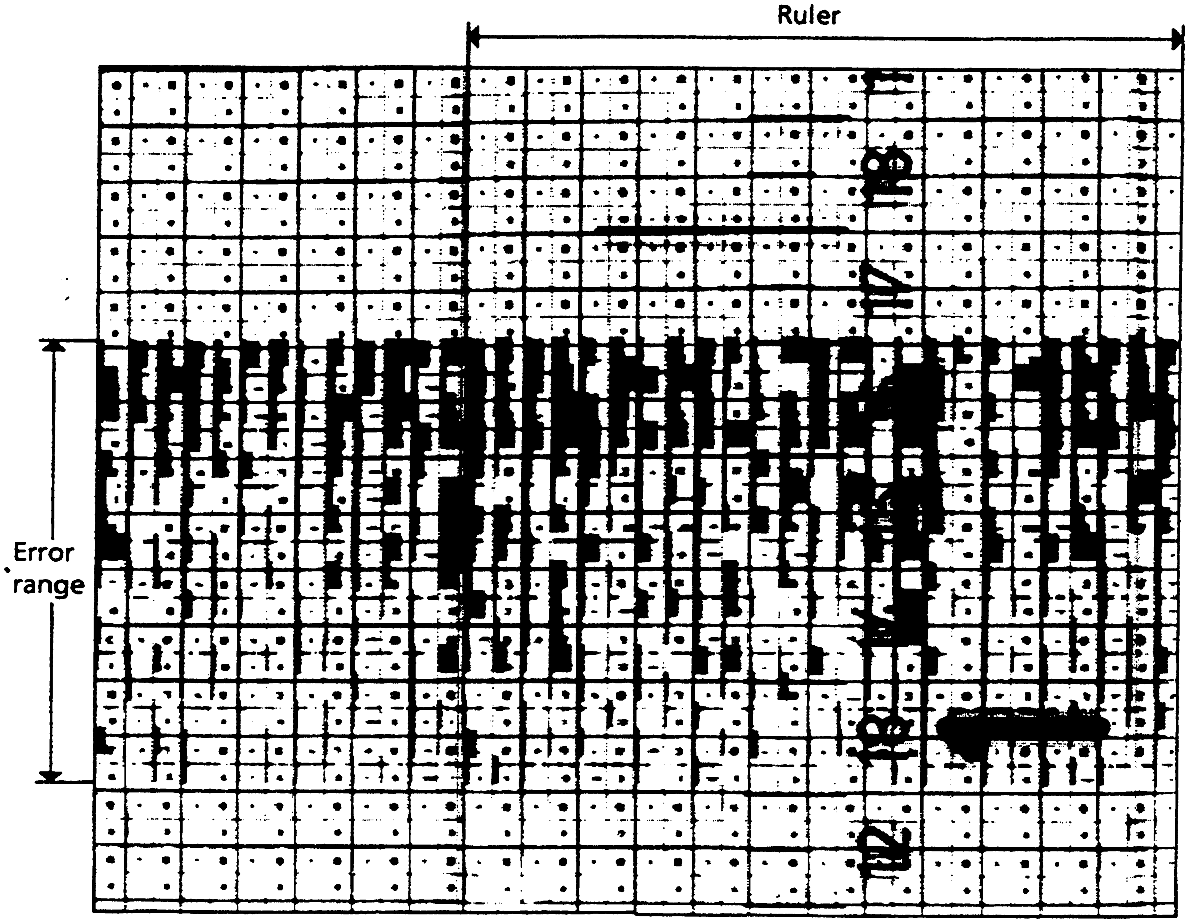
b. Check platter for bent pins.

c. Replace PCB ZGS**.

d. Replace PCB TLA**.

e. Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 18


Ruler
Error range

← Paper path direction

Figure 3-214. Print Sample 18

Failure Description

Print distortion in the limits of one module, one or more ICs.

Cause

Cable, or PC boards, but unlikely the LED array.

Certainty of Diagnosis

Ambiguous failure.

Corrective Procedure

a. Check cable. Swap data bus cable for control bus cable.

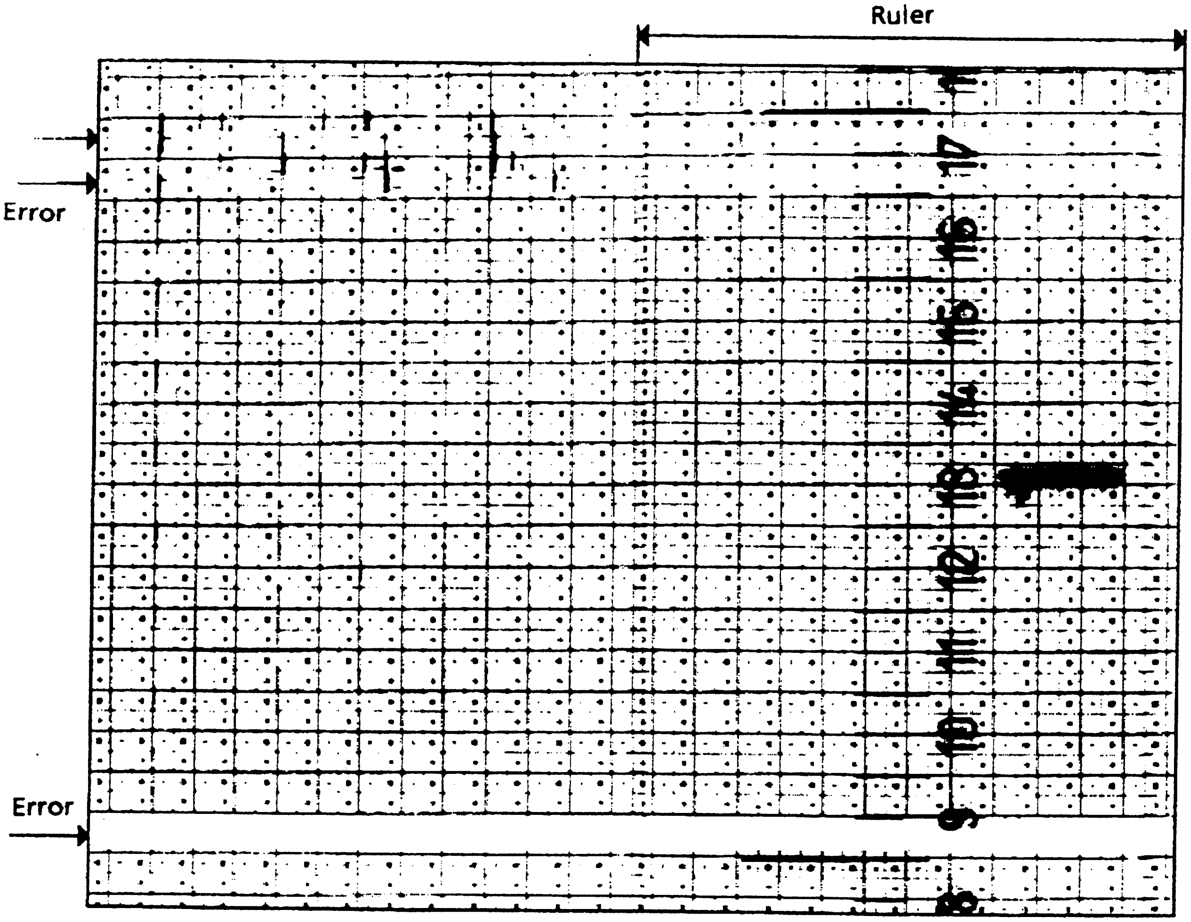
b. Check platter for bent pins.

c. Replace PCB ZGS**.

d. Replace PCB TLA**.

e. Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 19


Ruler
Error
Error
17
16
15
14
13
12
11
10
9
8

← Paper path direction

Figure 3-215. Print Sample 19

Failure Description

Print distortion in the limits of one module, one or more ICs.

Cause

Cable, or PC boards, but unlikely the LED array.

Certainty of Diagnosis

Ambiguous failure.

Corrective Procedure

a. Check cable. Swap data bus cable for control bus cable.

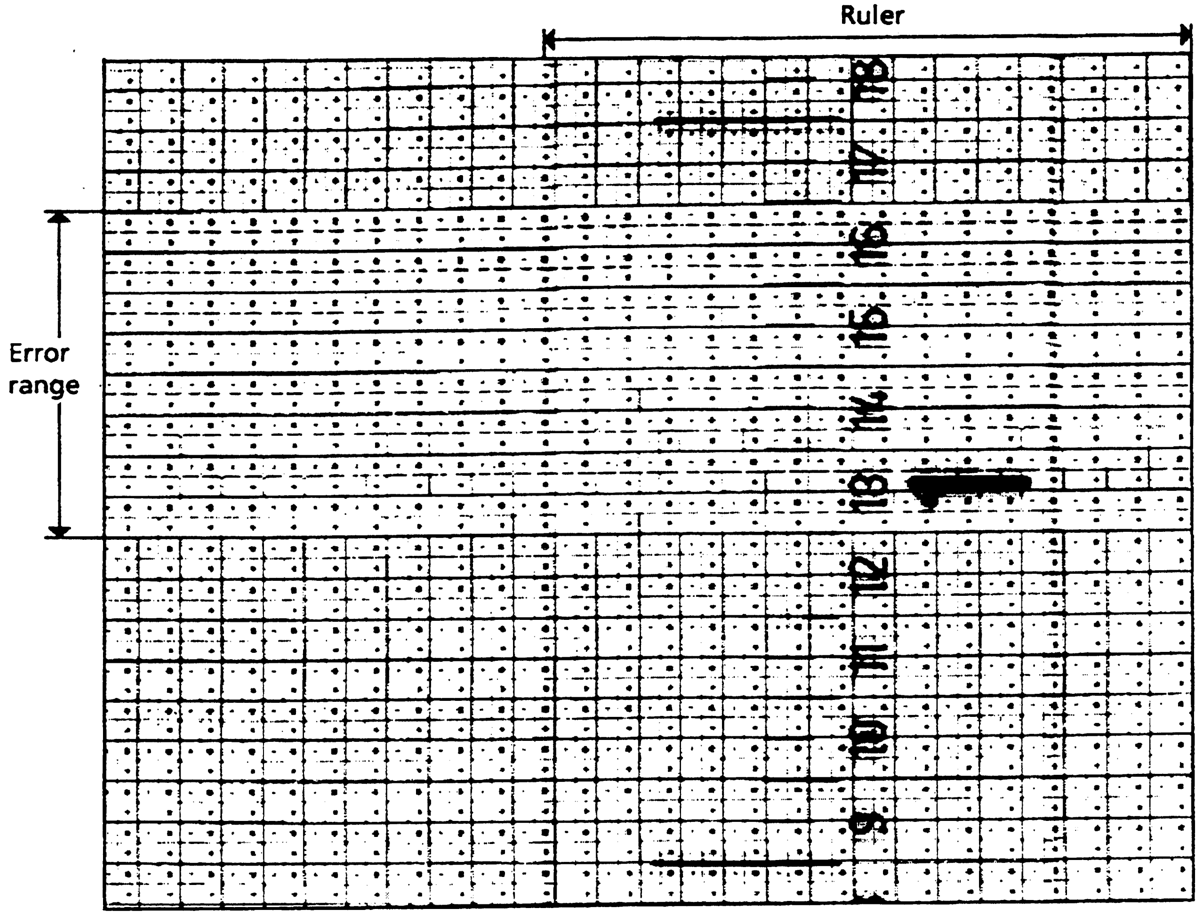
b. Check platter for bent pins.

c. Replace PCB ZGS**.

d. Replace PCB TLA**.

e. Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 20


Ruler
Error range

← Paper path direction

Figure 3-216. Print Sample 20

Failure Description

Print distortion in the limits of one module, one or more ICs.

Cause

Cable, or PC boards, but unlikely the LED array.

Certainty of Diagnosis

Ambiguous failure.

Corrective Procedure

a. Check cable. Swap data bus cable for control bus cable.

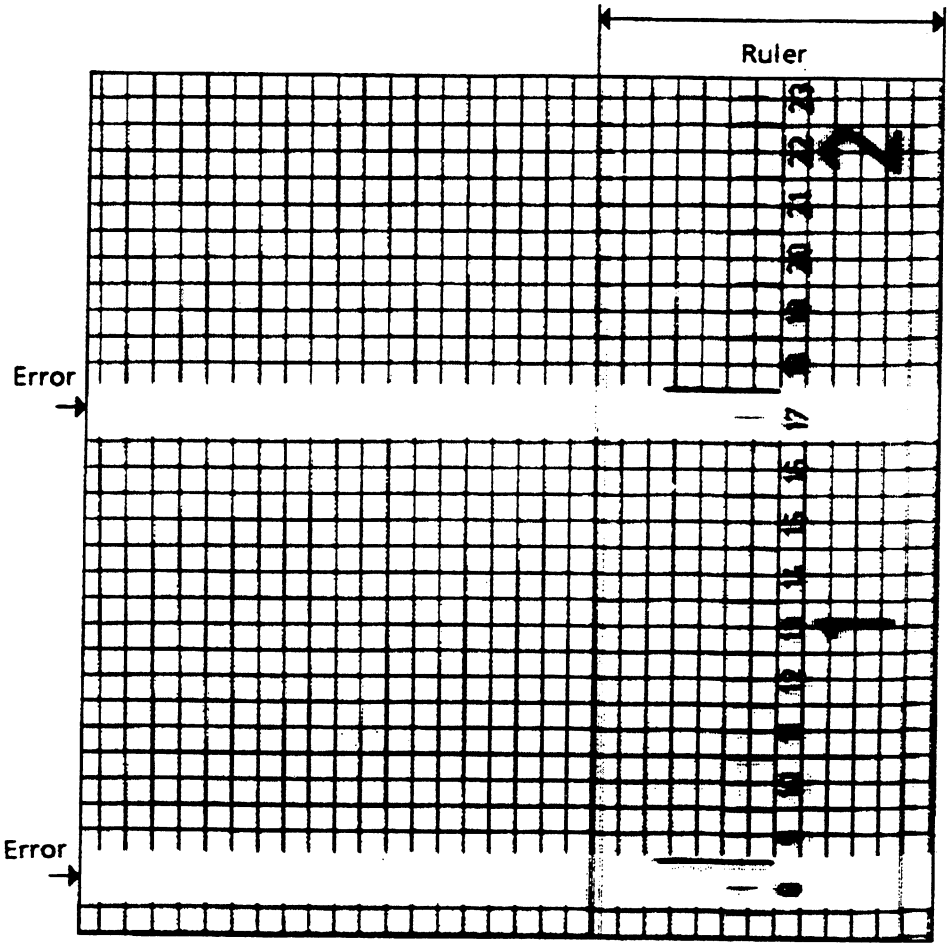
b. Check platter for bent pins.

c. Replace PCB ZGS**.

d. Replace PCB TLA**.

e. Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 21


Ruler
Error
Error
23
22
21
20
17
16
15
14
12
2
1

← Paper path direction

Figure 3-217. Print Sample 21

Failure Description

Loss of print (1 IC wide) repeated every module over the complete length of the LED array.

Cause

a. Short on data bus.

b. Cable, or PC boards, but unlikely the LED array.

Certainty of Diagnosis

Ambiguous failure.

Corrective Procedure

a. Check cable. Swap data bus cable for control bus cable.

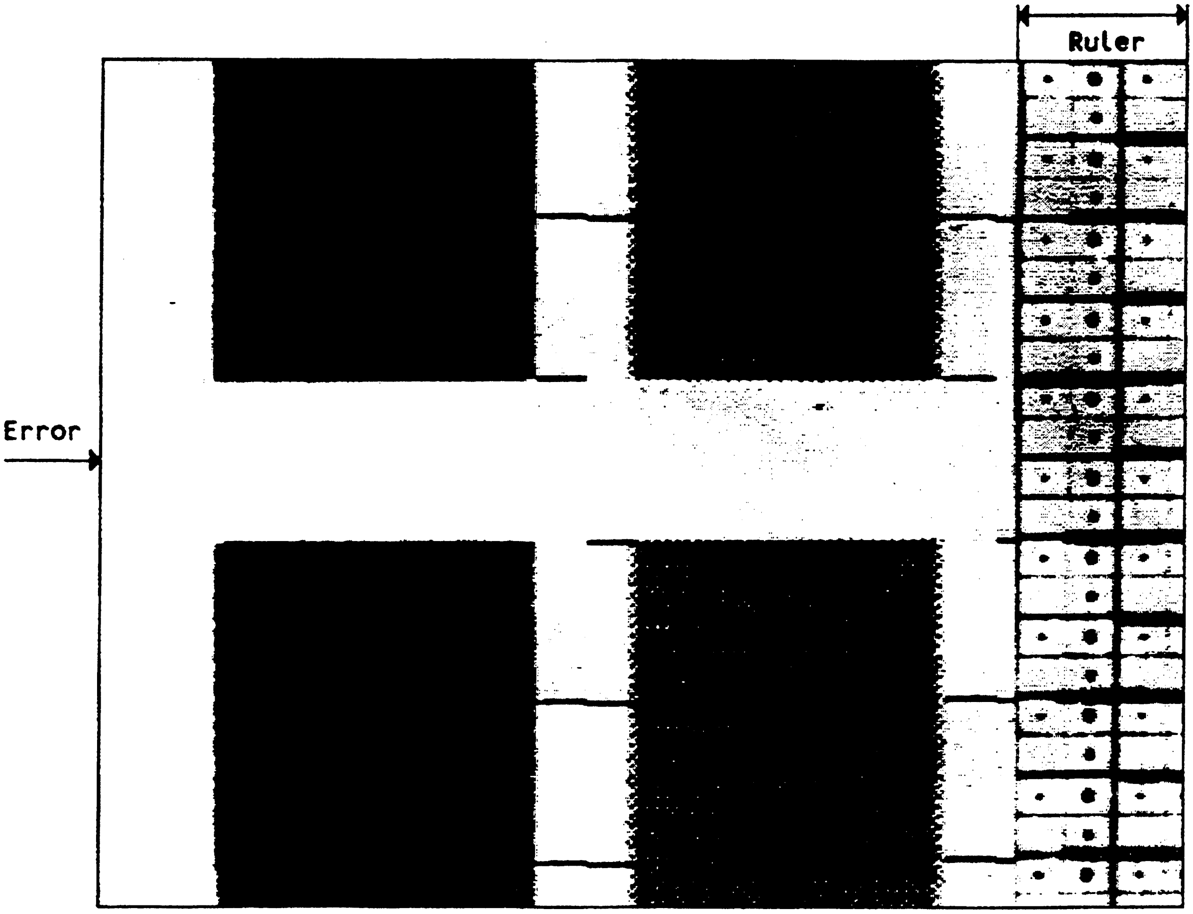
b. Check platter for bent pins.

c. Replace PCB ZGS**.

d. Replace PCB TLA**.

e. Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 22


Ruler
Error

← Paper path direction

Figure 3-218. Print Sample 22

Failure Description

Totally unprinted stripe congruent with IC limits.

Cause

a. Interruptions or short on bus lines.

b. Cable, PC boards, or LED array.

Certainty of Diagnosis

Ambiguous failure.

Corrective Procedure

a. Check cable. Swap data bus cable for control bus cable.

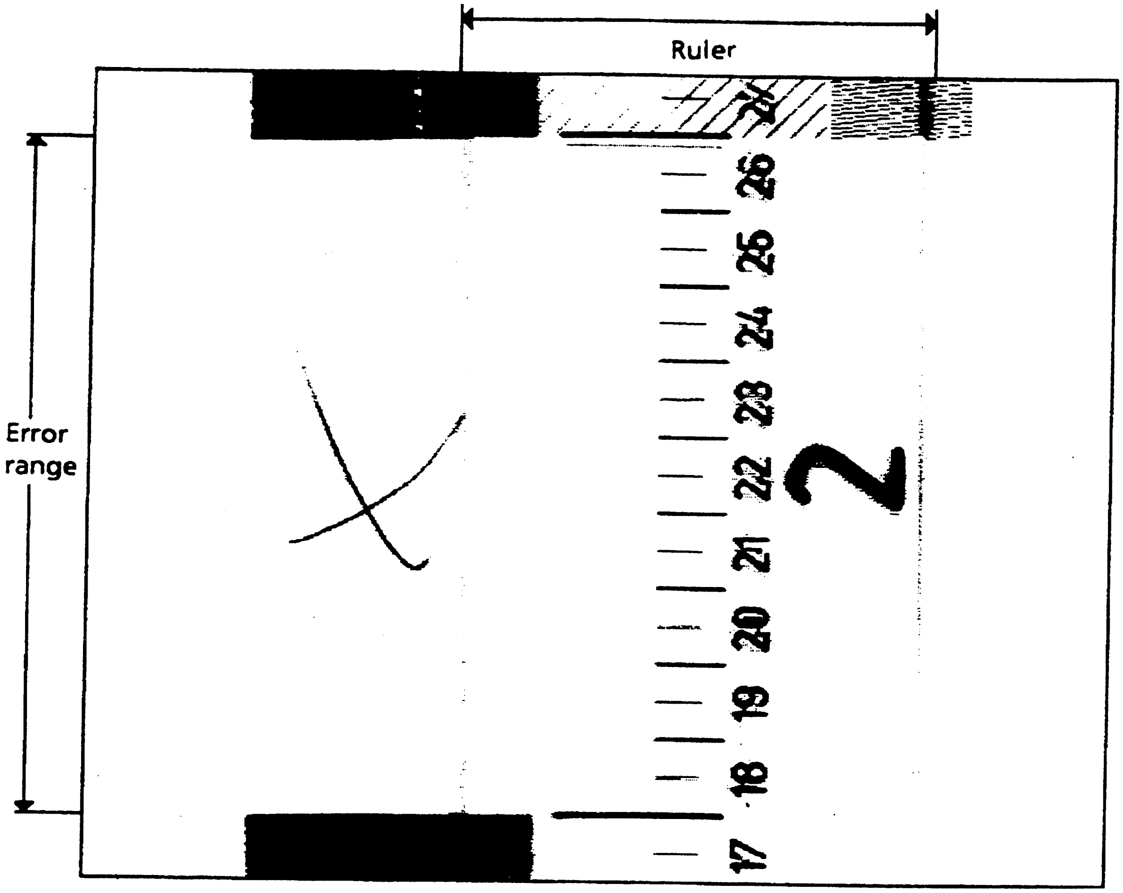
b. Check platter for bent pins.

c. Replace PCB ZGS**.

d. Replace PCB TLA**.

e. Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 23


Ruler
Error range
27
26
25
24
23
22
21
20
19
18
17
2

← Paper path direction

Figure 3-219. Print Sample 23

Failure Description

Totally unprinted stripe in the limits of 1 module in paper path direction.

Cause

Cable, or PC boards, but unlikely the LED array.

Certainty of Diagnosis

Ambiguous failure.

Corrective Procedure

a. Check cable. Swap data bus cable for control bus cable.

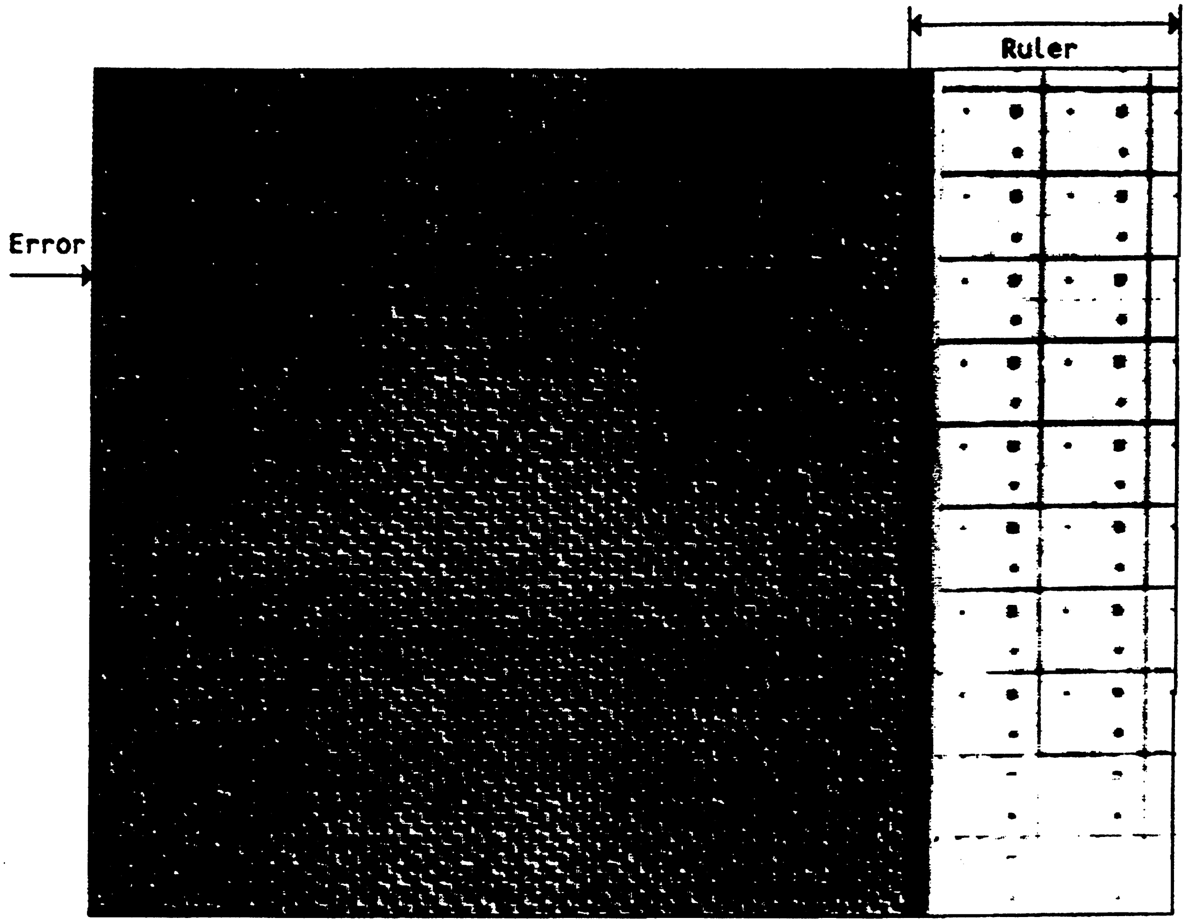
b. Check platter for bent pins.

c. Replace PCB ZGS**.

d. Replace PCB TLA**.

e. Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 24


Ruler
Error

← Paper path direction

Figure 3-220. Print Sample 24

Failure Description

Dark line in raster print 2 LEDs wide.

Cause

Short of 2 neighboring LEDs.

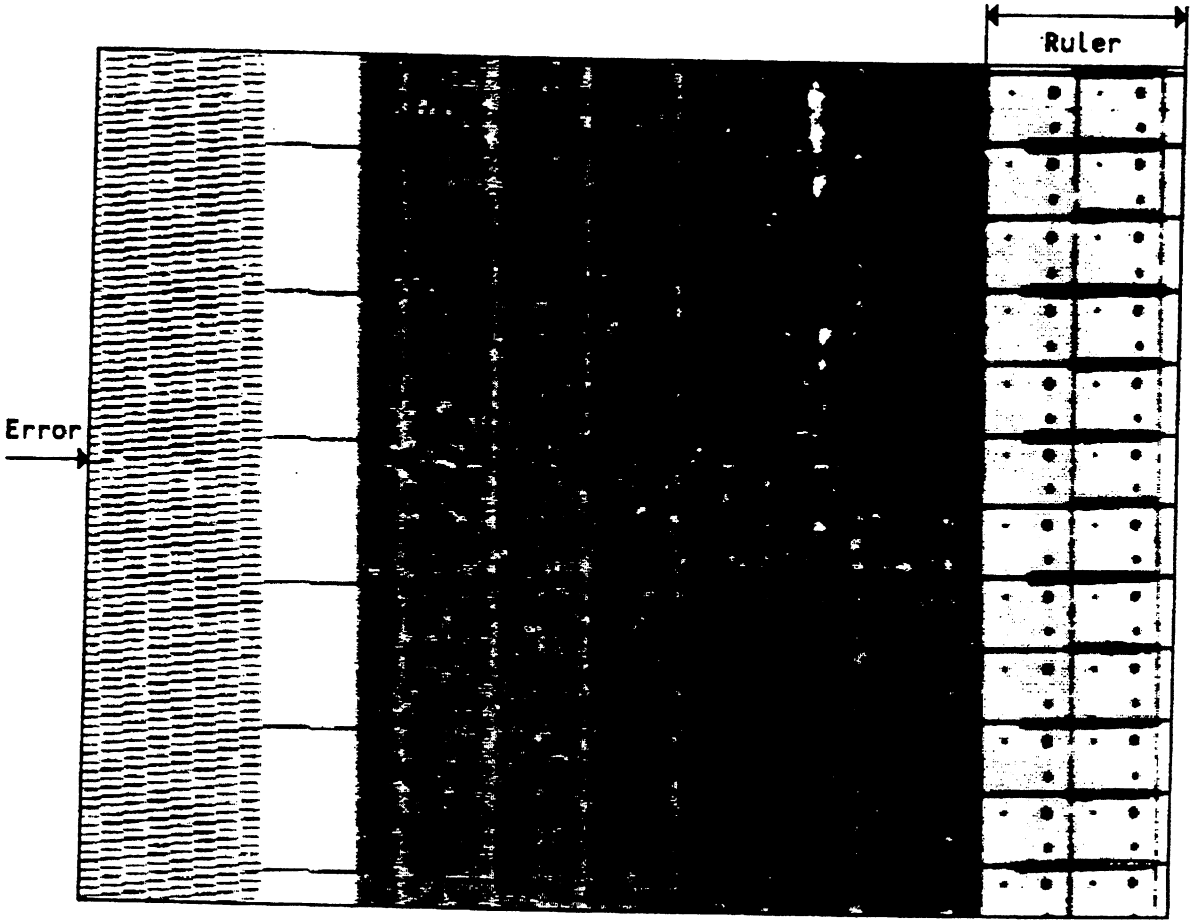
Certainty of Diagnosis

LED array defective.

Corrective Procedure

Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 25


Ruler
Error

← Paper path direction

Figure 3-221. Print Sample 25

Failure Description

Dark line in raster print 2 LEDs wide (looks like twisted wire) .

Cause

Short of 2 neighboring LEDs. Visible only if one of the 2 LEDs is activated.

Certainty of Diagnosis

LED array defective.

Corrective Procedure

Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 26

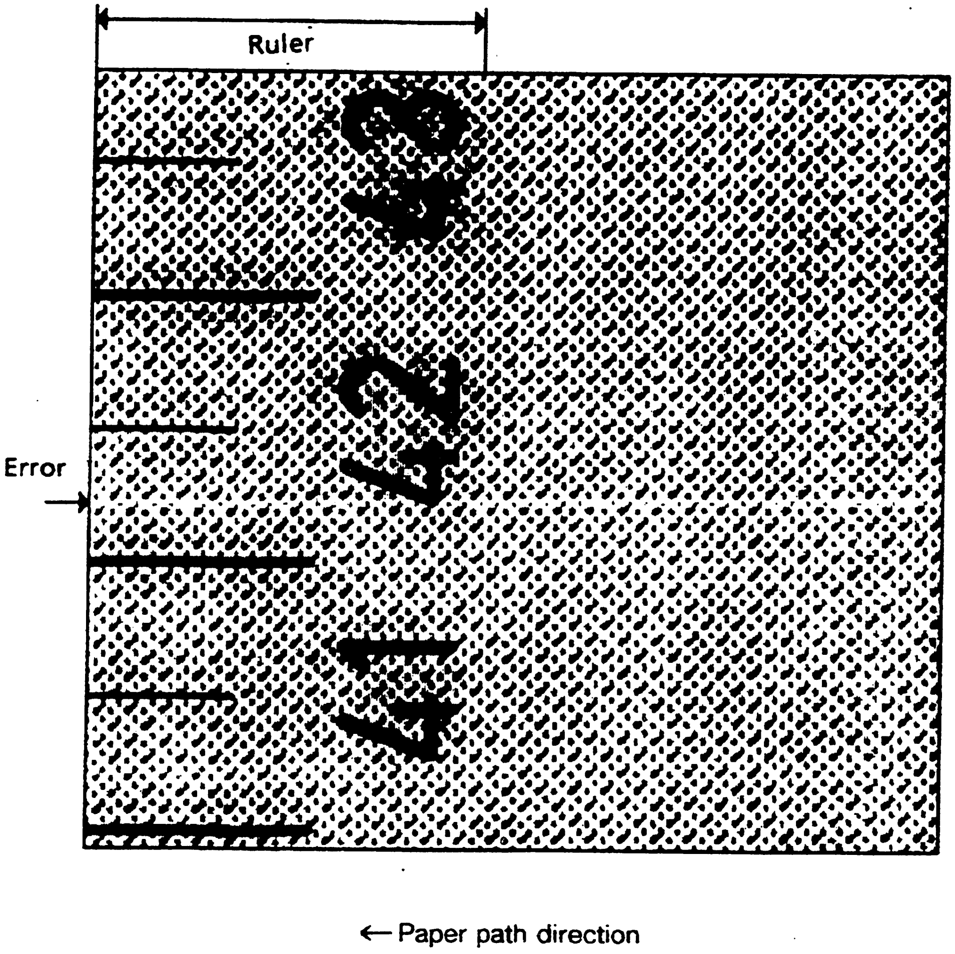

Ruler
Error
43
42
41
← Paper path direction

Figure 3-222. Print Sample 26

Failure Description

Bright line in raster print over print area 2 LEDs wide.

Cause

Short of 2 neighboring LEDs.

Certainty of Diagnosis

LED array defective.

Corrective Procedure

Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 27

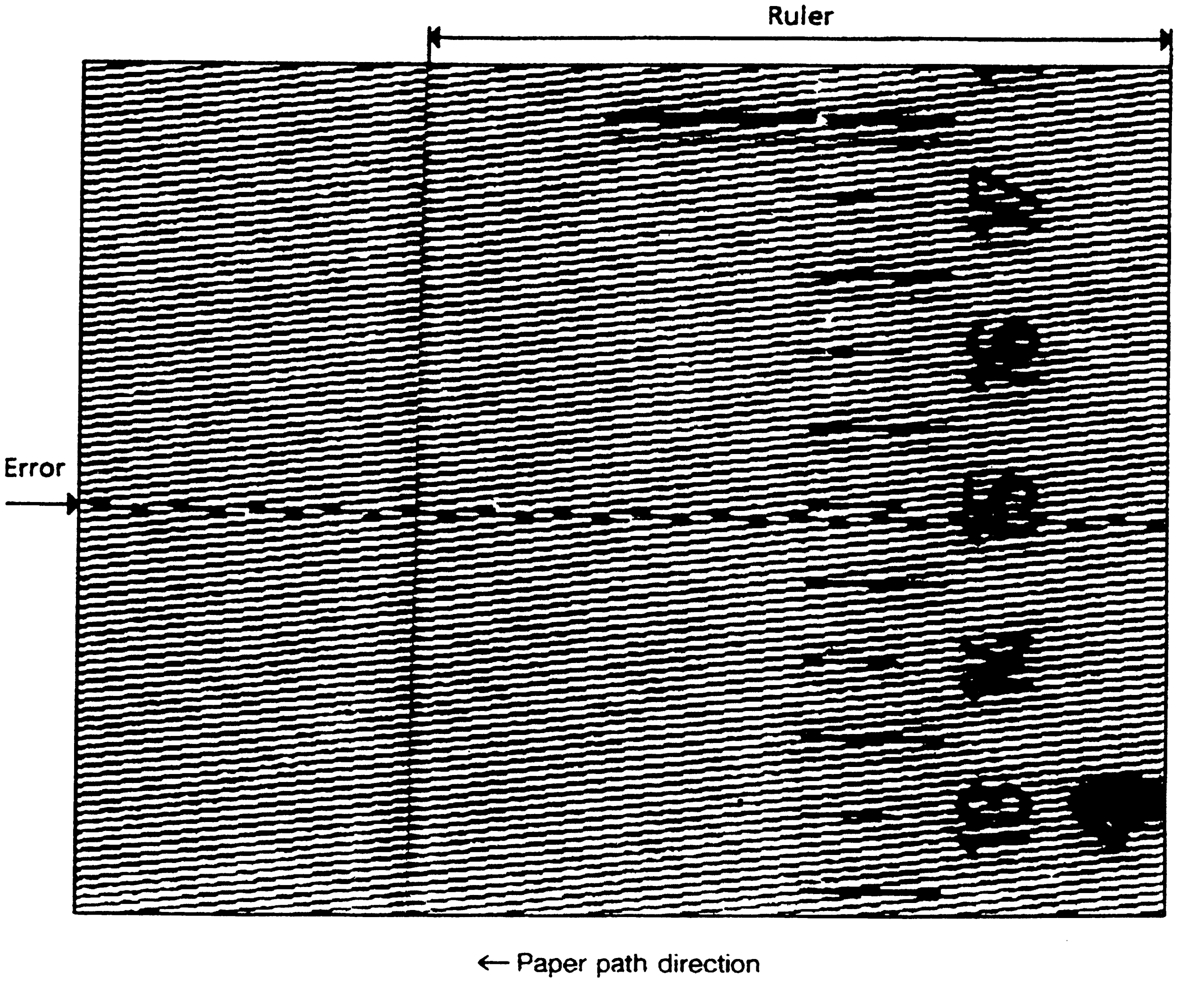

Ruler
Error
← Paper path direction

Figure 3-223. Print Sample 27

Failure Description

Dark dots in raster print in paper path direction 2 LEDs wide.

Cause

Short of 2 neighboring LEDs.

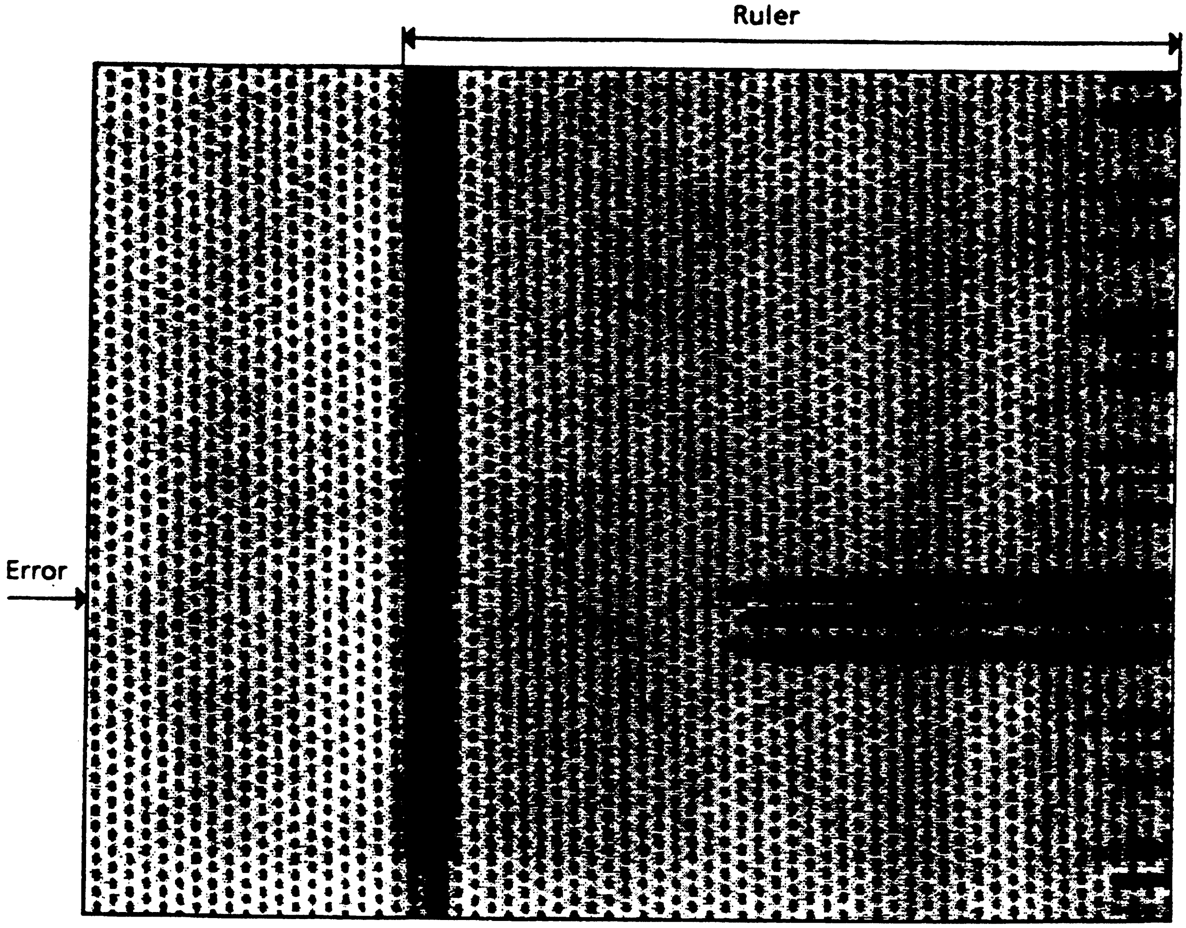
Certainty of Diagnosis

LED array defective.

Corrective Procedure

Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 28


Ruler
Error

← Paper path direction

Figure 3-224. Print Sample 28

Failure Description

Dark line in raster print in paper path direction 2 LEDs wide.

Cause

Short of 2 neighboring LEDs.

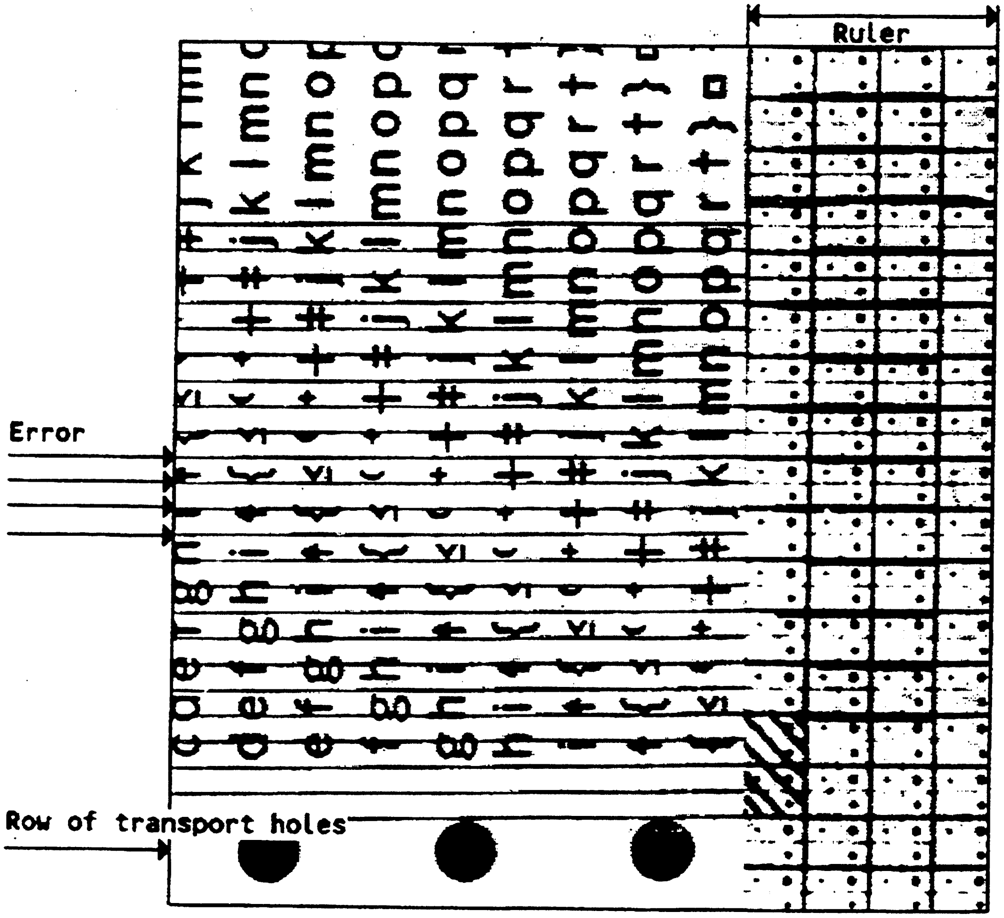
Certainty of Diagnosis

LED array defective.

Corrective Procedure

Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 29


Ruler
Error
Row of transport holes

← Paper path direction

Figure 3-225. Print Sample 29

Failure Description

Black lines at a distance of 1 latch (1/4 IC) in the paper path direction, starting from the operator panel side, but not extending over the full width of the LED array. The error ends at a module limit and covers the entire width of the paper (DIN A4/letter size).

Cause

Interruption on the data bus.

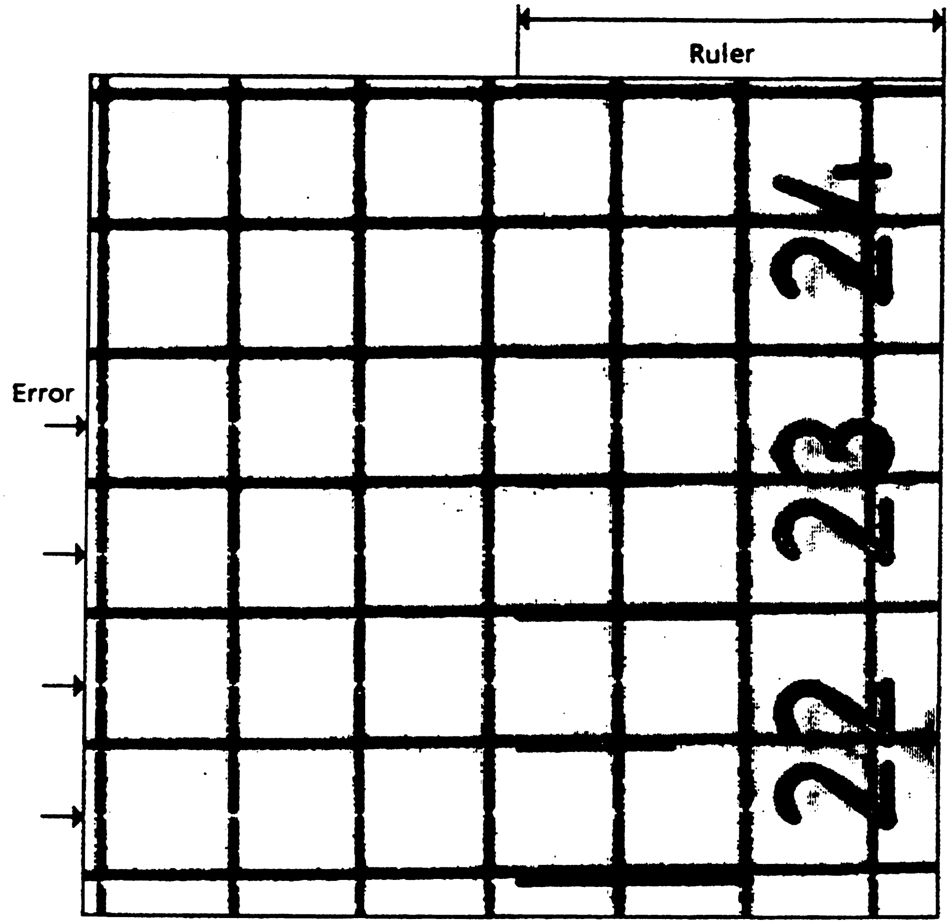
Certainty of Diagnosis

LED array defective, if the error does not cover the entire length of the LED array. Otherwise refer to *Print Sample 9*.

Corrective Procedure

Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 30


Ruler
Error
22
22
23
23
24

← Paper path direction

Figure 3-226. Print Sample 30

Failure Description

Loss of print (2 LEDs wide), repeated every latch starting from the operator panel side, but not over the entire length of the LED array.

Cause

Short circuit on data bus.

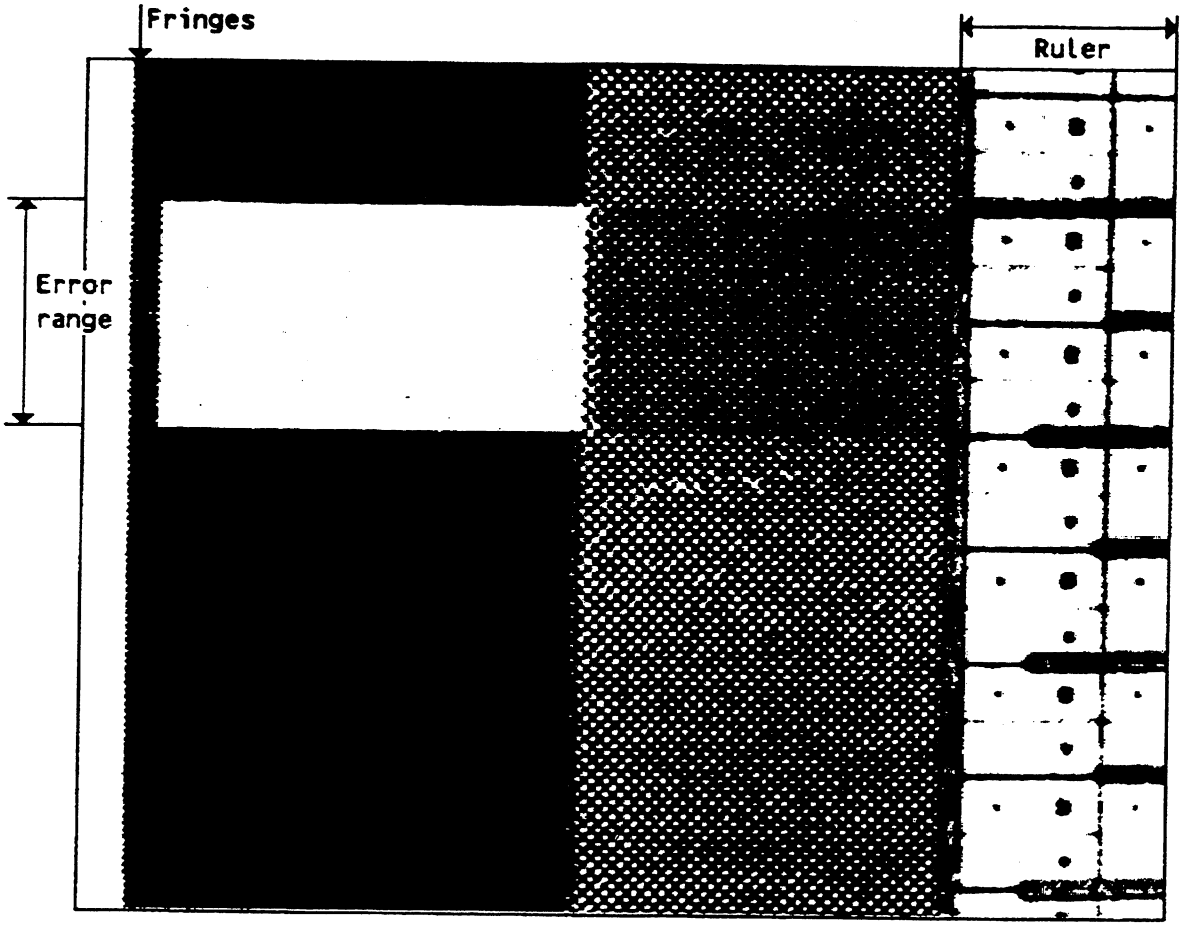
Certainty of Diagnosis

LED array defective.

Corrective Procedure

Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 31


Fringes
Ruler
Error range

← Paper path direction

Figure 3-227. Print Sample 31

Failure Description

Defective, well focused stripe in the print area congruent with the IC limits. (Carpet-like fringes are not a failure in offline print mode because the cache is not active in this mode.)

Cause

After switching ON all LEDs, light intensity breaks down totally on 1 IC.

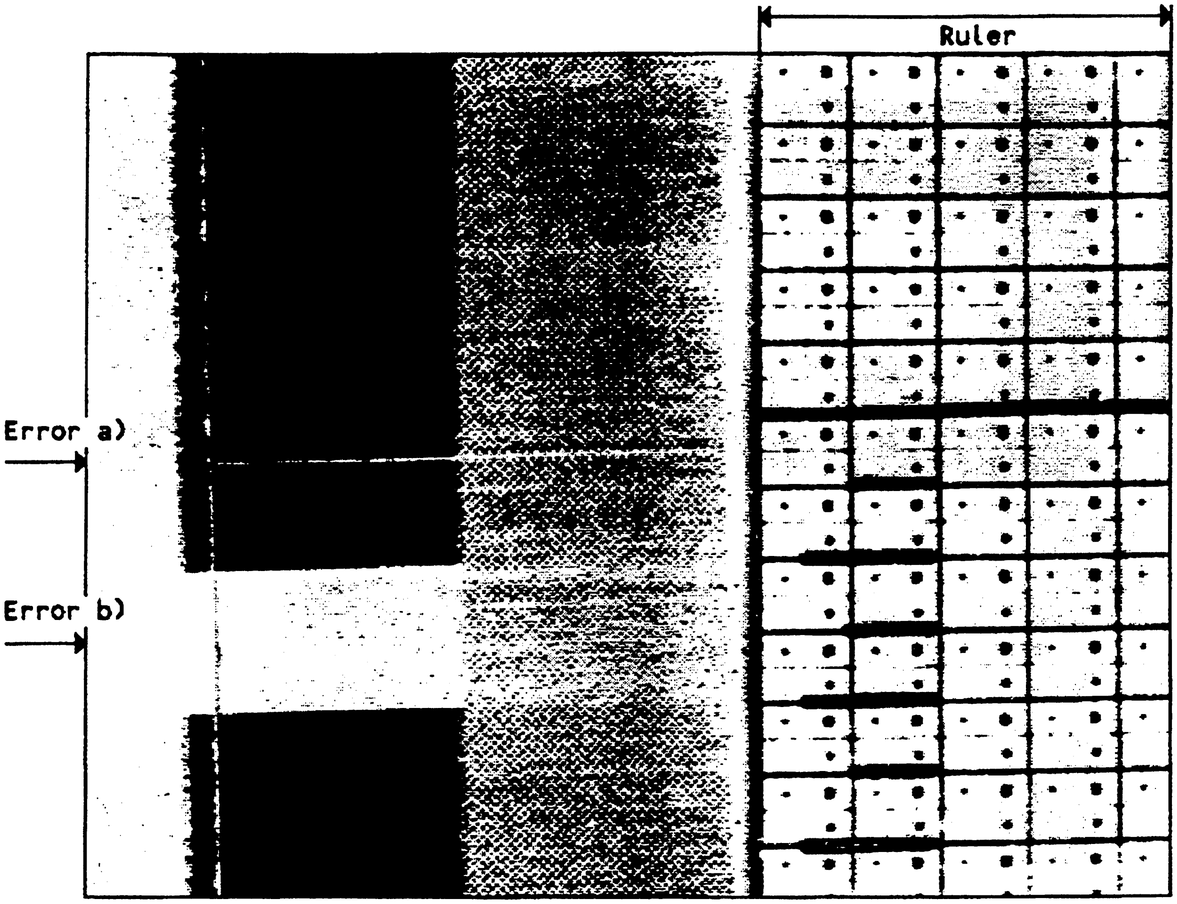
Certainty of Diagnosis

LED array defective.

Corrective Procedure

Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 32


Ruler
Error a)
Error b)

← Paper path direction

Figure 3-228. Print Sample 32

Failure Description

a. Bright stripe in print area, well focused, and 1 LED wide.

b. Bright stripe in print area, well focused, depending on print pattern.

Cause

a. One LED defective.

b. Internal LED-IC resistance too high.

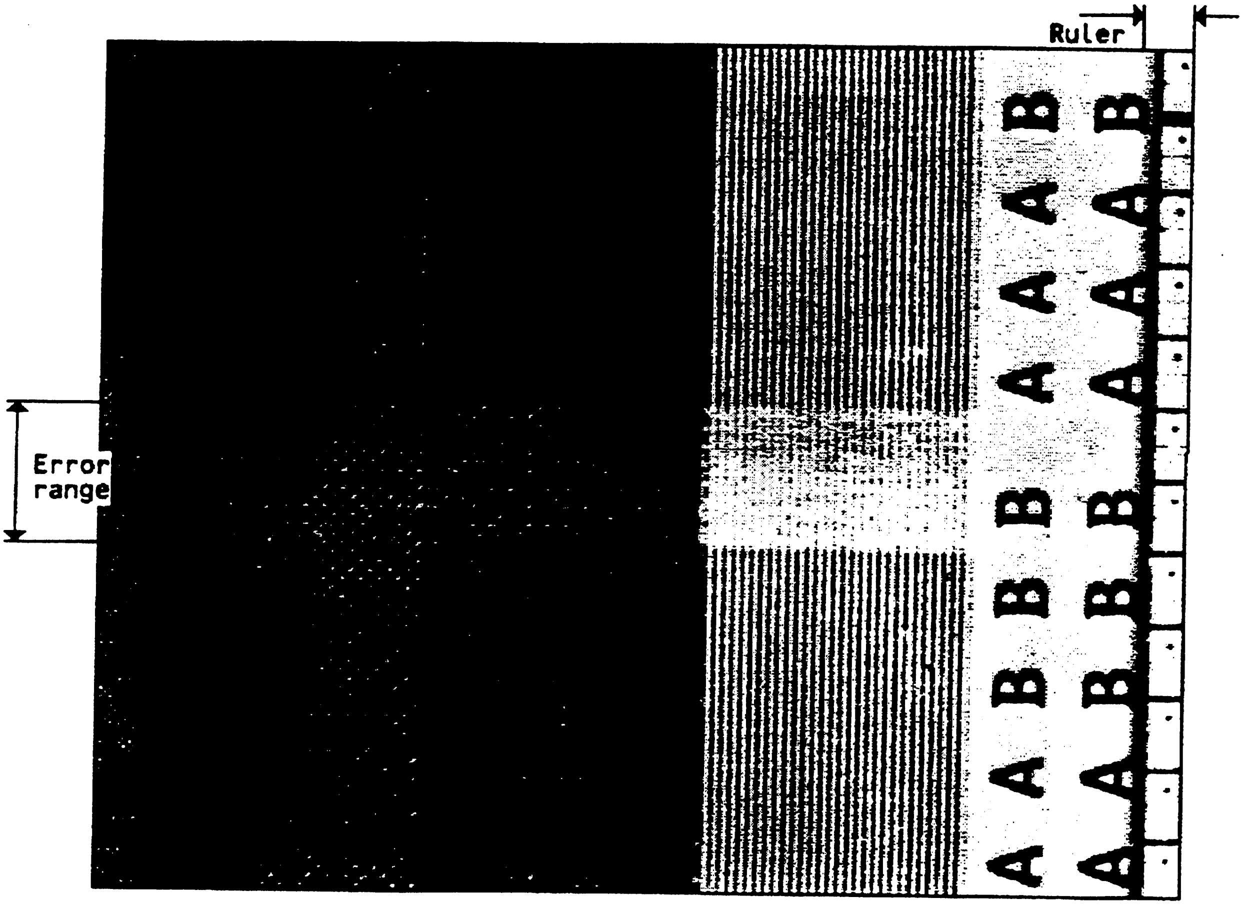
Certainty of Diagnosis

LED array defective.

Corrective Procedure

Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 33


Ruler
Error range
A B
A A A
B B B
A A
A B
A A A
B B B
A A

← Paper path direction

Figure 3-229. Print Sample 33

Failure Description

Bright, well focused stripe in the print area congruent with the limits of 1 IC, depending on the print pattern.

Cause

Internal LED-IC resistance too high.

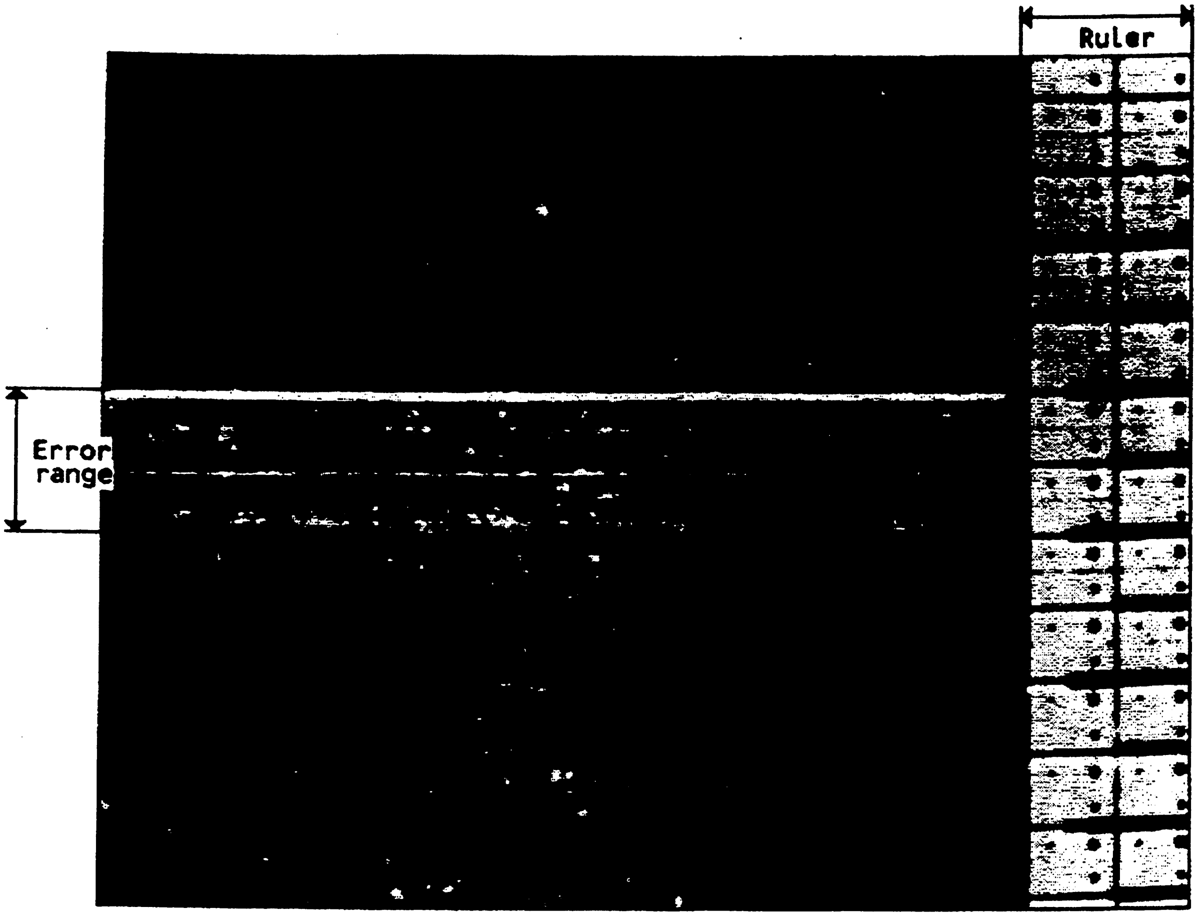
Certainty of Diagnosis

LED array defective.

Corrective Procedure

Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 34


Ruler
Error range

← Paper path direction

Figure 3-230. Print Sample 34

Failure Description

Bright, well focused stripe in the print area congruent with the limits of 1 IC, depending on the print pattern. (Bright Print = Low LED light intensity.)

Cause

Internal LED-IC resistance too high.

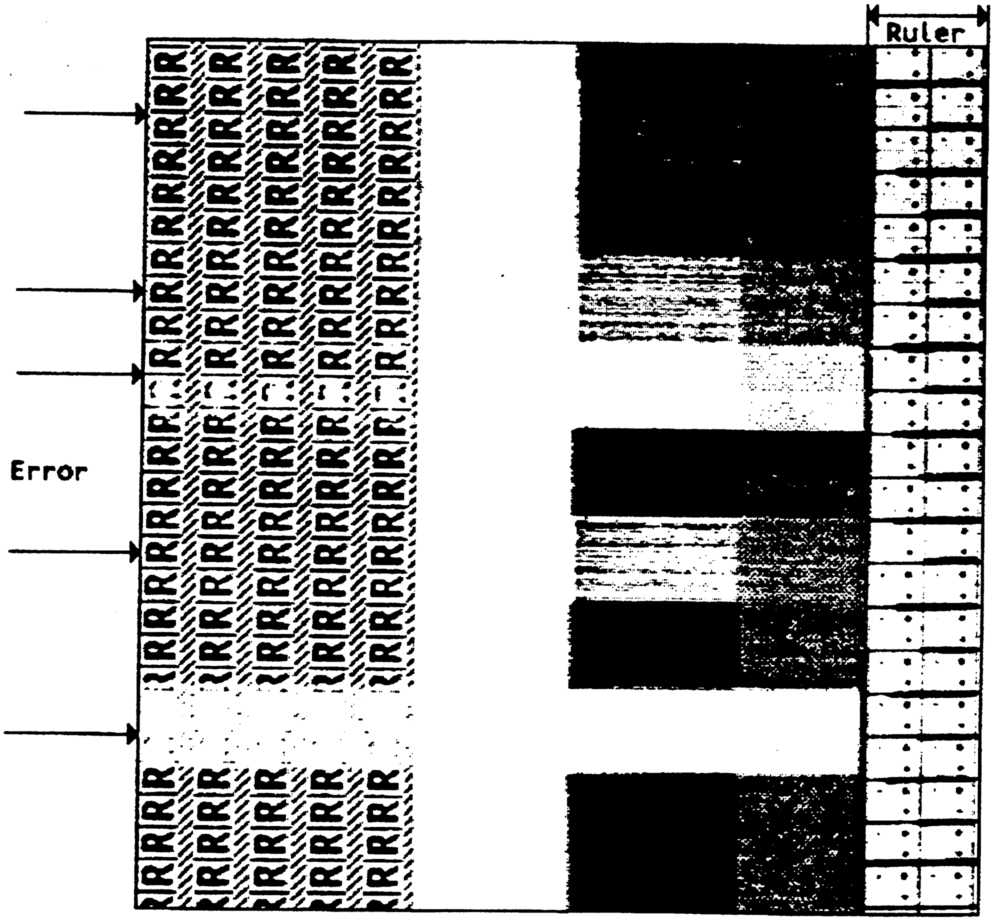
Certainty of Diagnosis

LED array defective.

Corrective Procedure

Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 35


Ruler
Error

← Paper path direction

Figure 3-231. Print Sample 35

Failure Description

Several LED-ICs are darker or fail to light.

Cause

Internal LED-IC resistance of several LED-ICs within a module is too high.

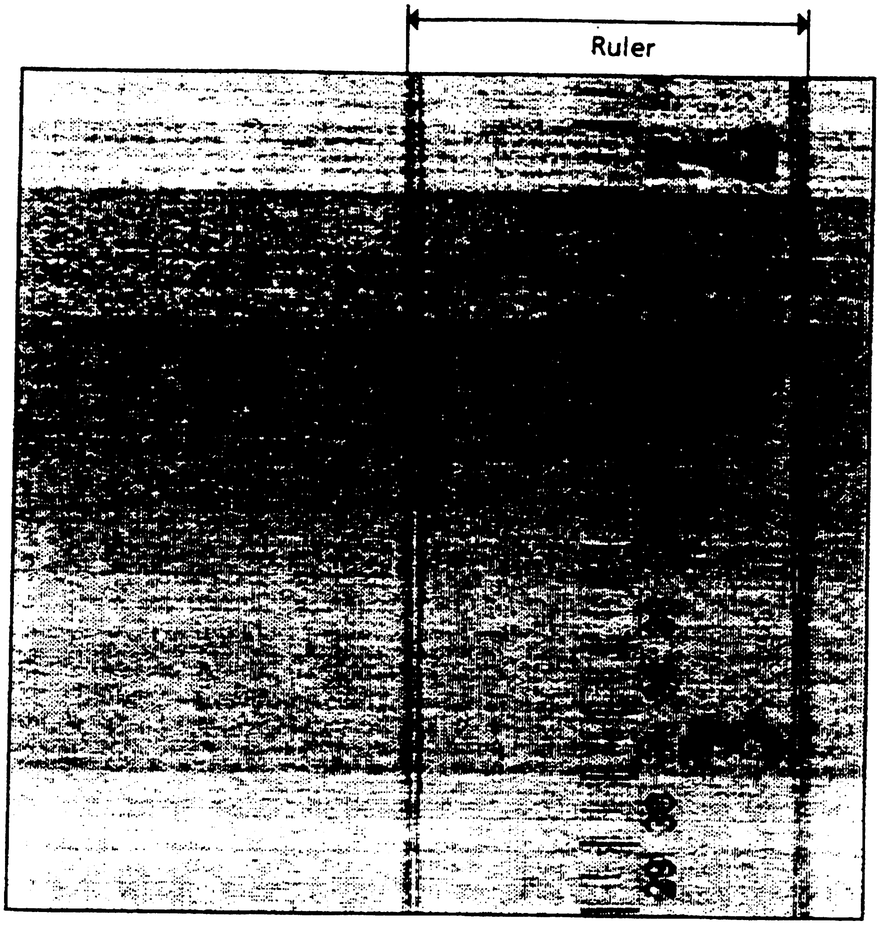
Certainty of Diagnosis

LED array defective.

Corrective Procedure

Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 36



← Paper path direction

Figure 3-232. Print Sample 36

Failure Description

Well focused latch, IC, or module wide stripes are lighter or darker in the paper path direction.

Cause

Defective NV-RAM probable.

Certainty of Diagnosis

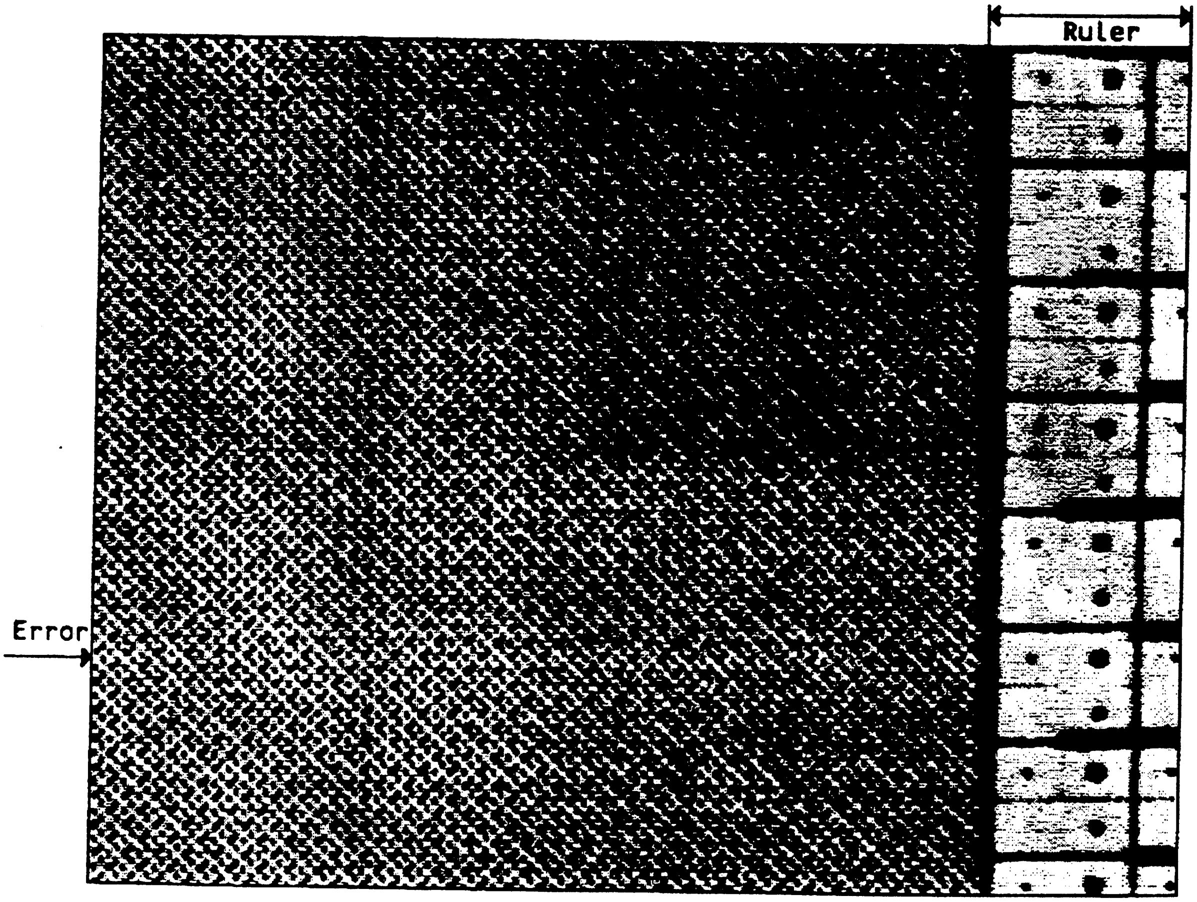
Ambiguous failure.

Corrective Procedure

a. Perform alignment if automatic alignment is activated.

b. Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 37


Ruler
Error

← Paper path direction

Figure 3-233. Print Sample 37

Failure Description

Diffuse, unfocused bright stripe in paper path direction.

Cause

SELFOC damaged.

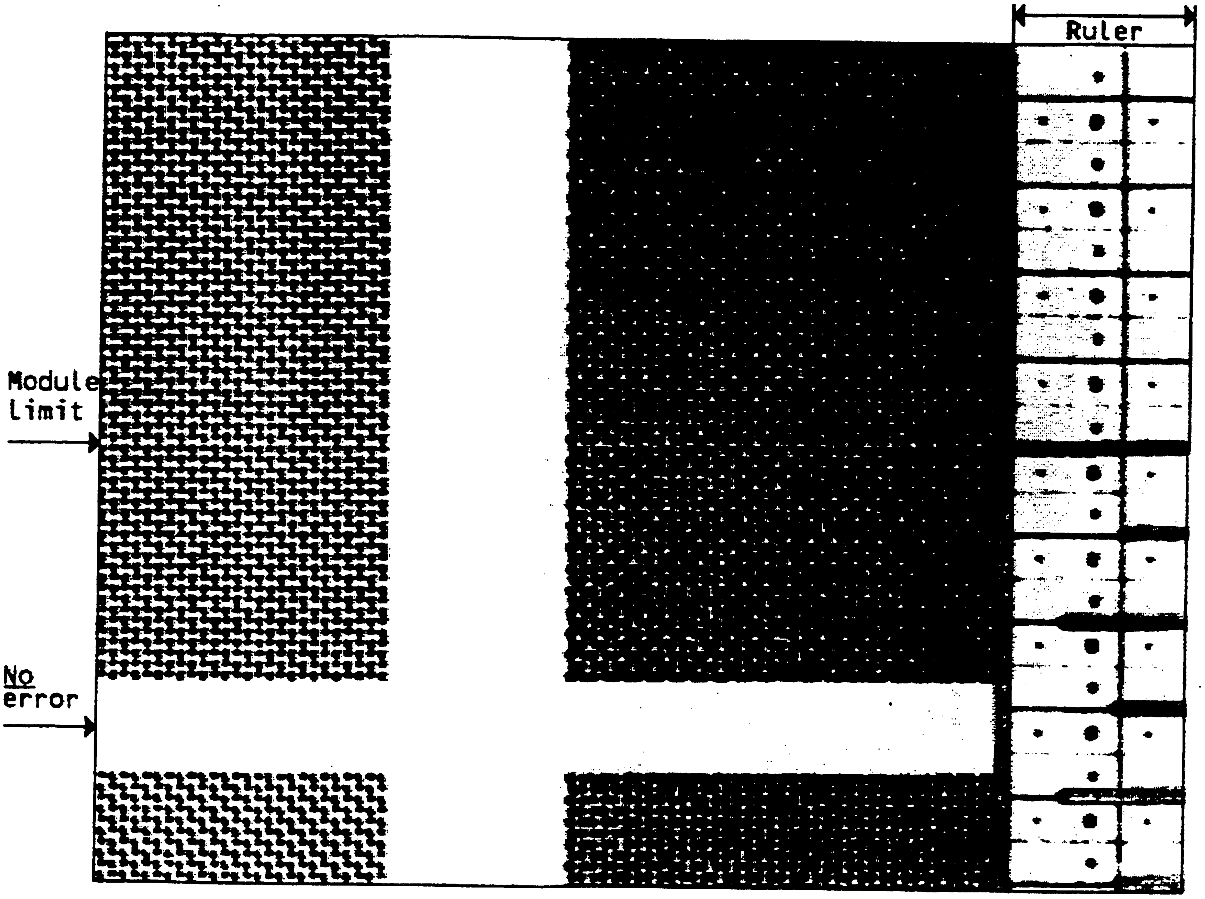
Certainty of Diagnosis

a. Defective corotrons, developer, or PC drum likely.
b. Dust on LED array.
c. LED array defective.

Corrective Procedure

a. Check corotrons, developer, and PC drum; replace if necessary. Also, turn the PC drum around.
b. Clean the LED array (Routine 81B).
c. Remove LED array and check it in another printer for the same problem.
d. Replace LED array (Routine 81A2). Return the faulty LED array according to the guidelines at the beginning of this section.

Print Sample 38


Ruler
Module Limit
No error

← Paper path direction

Figure 3-234. Print Sample 38

Failure Description

Fine bright stripe, less than 1 LED wide at module limit.

Cause

Allowable manufacturing tolerance.

Certainty of Diagnosis

No error.

Corrective Procedure

No corrective procedure.

FOLDOUTS

- ERROR TROUBLESHOOTING (17X22)
- DEAD PRINTER FLOWCHART (11X22)
- HP 5000 (20SOMETHING X 36)

4

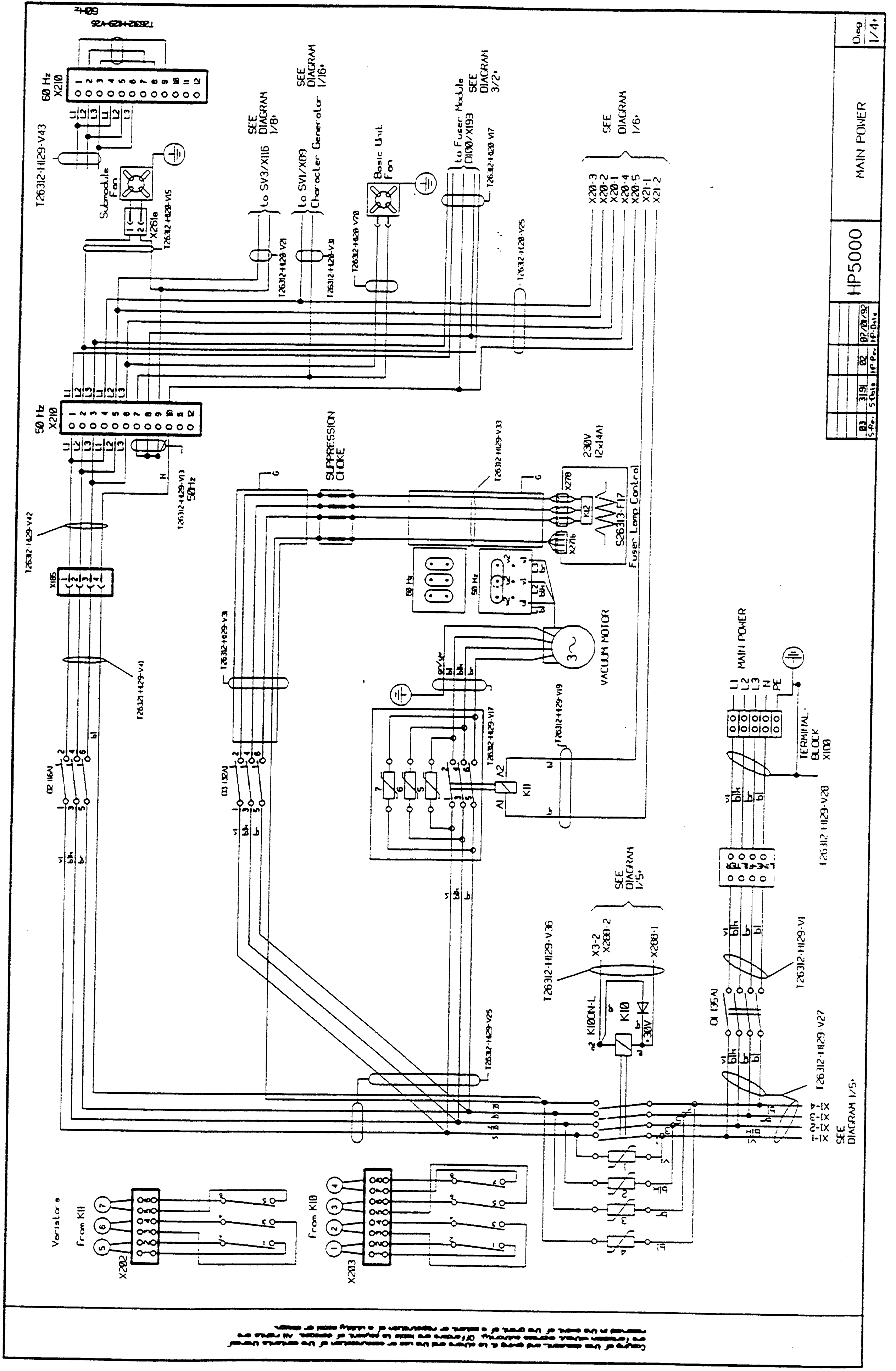
Wiring Diagrams

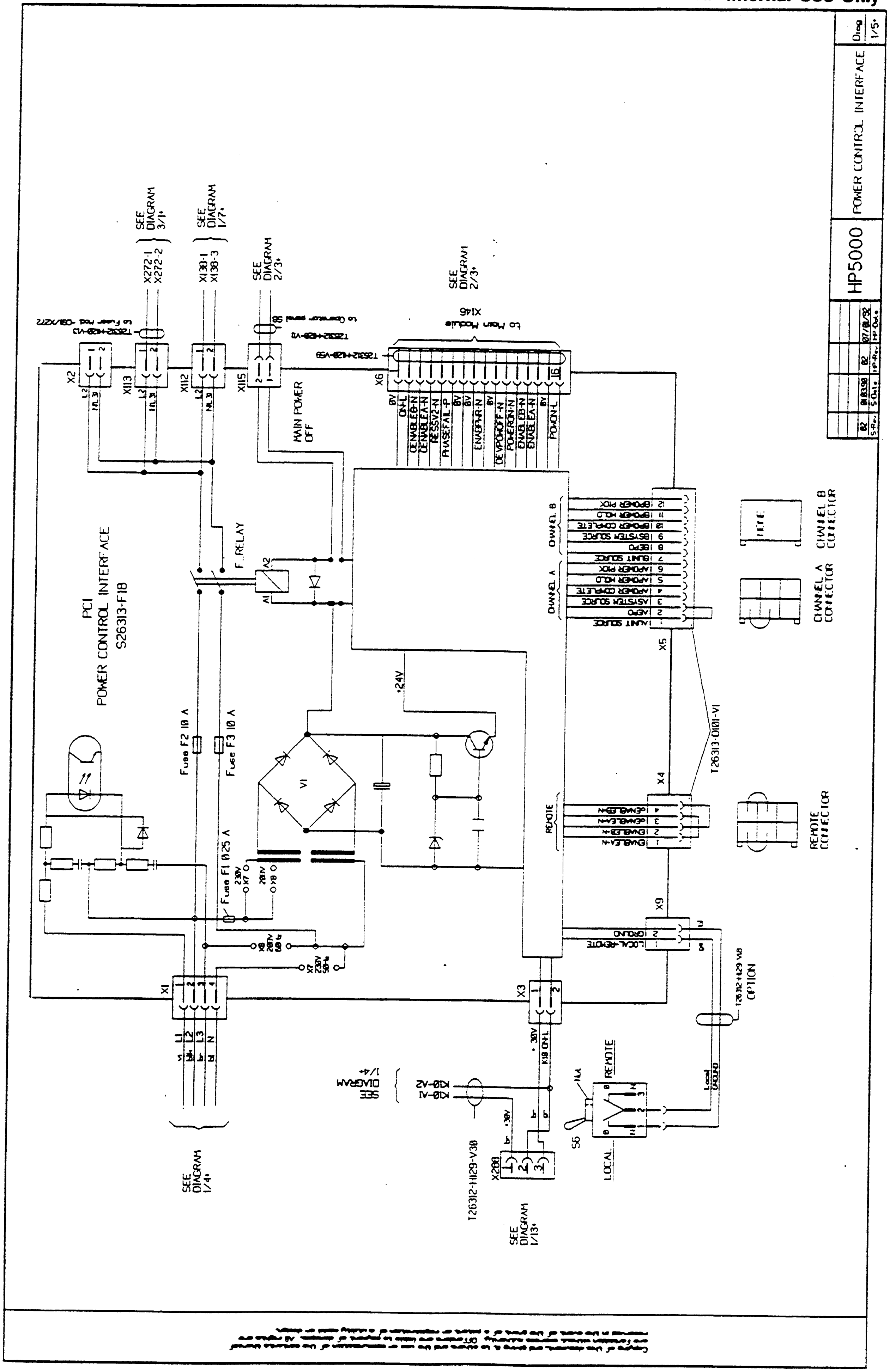
In This Section

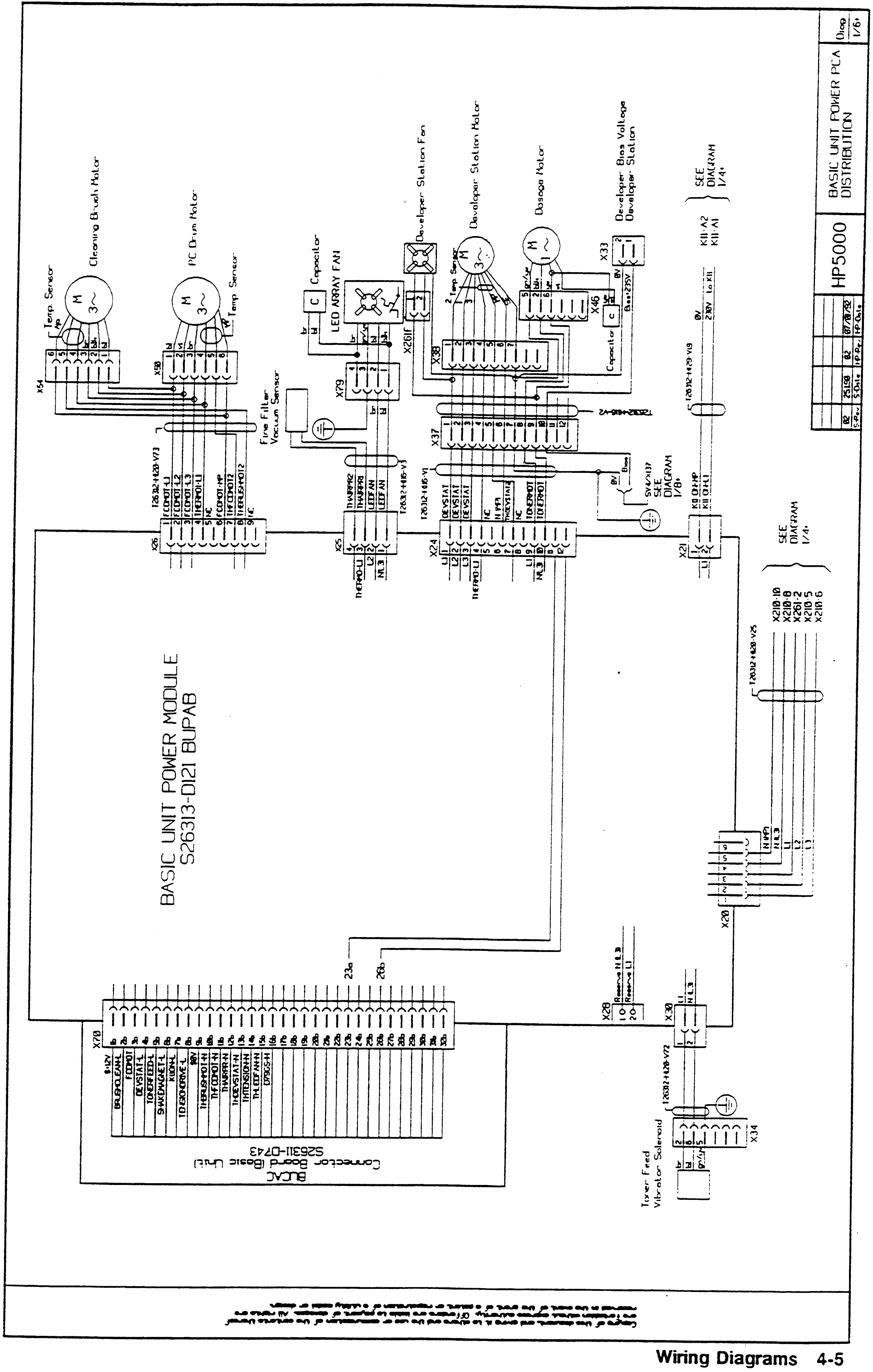
Device Electronics PCAs 4-2
Code Number Cross Reference 4-31
PCA Cross Reference 4-33
Switch Cross Reference 4-35
Connector Cross Reference 4-36

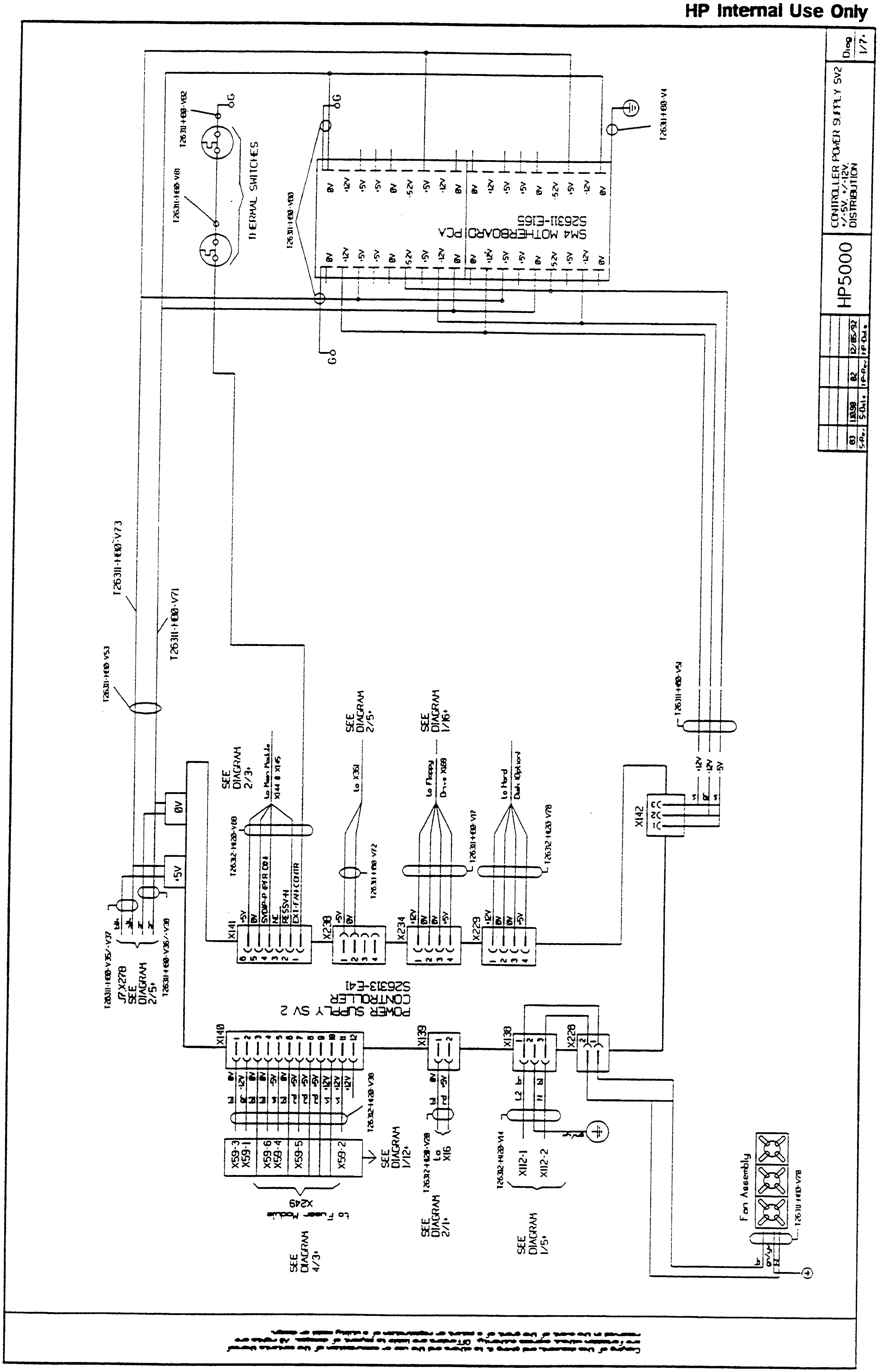
Device Electronics PCAs

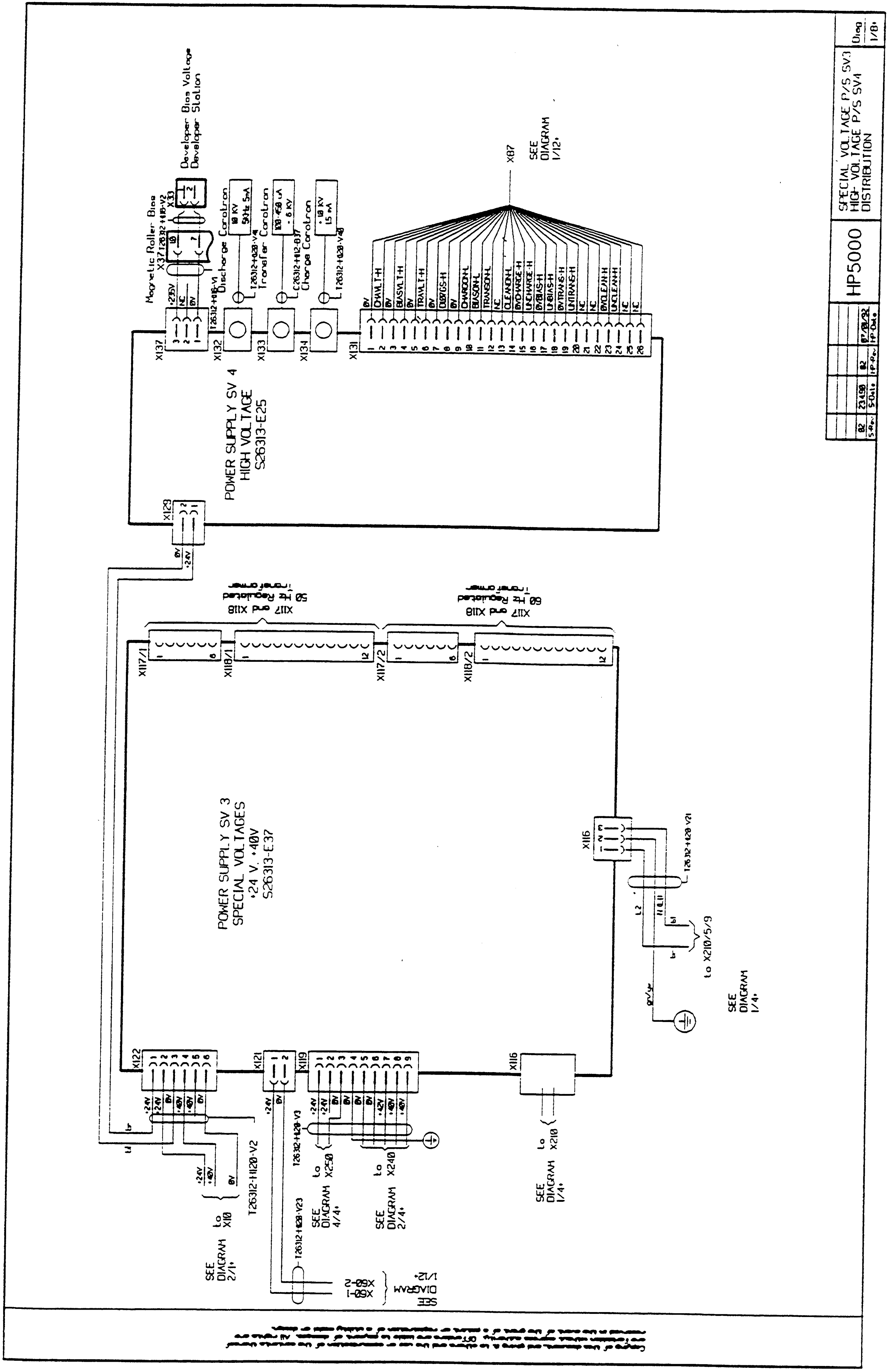
Diagram Title	Diagram Number
Main Power	1/4
Power Control Interface PCA	1/5
Basic Unit Power PCA	1/6
Controller P/S SV2	1/7
Special Voltge P/S SV3	1/8
High Voltage P/S SV4	1/8
Basic Unit Submodle 2; Distribution 1 of 4	1/9
Basic Unit Submodle 2; Distribution 2 of 4	1/10
Basic Unit Submodle 2; Distribution 3 of 4	1/11
Basic Unit Submodle 2; Distribution 4 of 4	1/12
Safety Circuit Contacter K10	1/13
Character Generator P/S SV1	1/16
Floppy Drives	1/16
LED Array	1/17
Paper Transport Submodule 1; Distribution 1 of 2	2/1
Paper Transport Submodule 1; Distribution 2 of 2	2/2
Operator Main Module PCA	2/3
Fuser Unit Power PCA	2/4
LIP Controller	2/5
Image Generator PCA	2/6
Remote Diagnostic PCA	2/6
Fuser Lamp Power PCA	3/1
Fuser Unit Power PCA	3/2
Fuser Station/Stacker PCA; Distribution 1 of 6	4/1
Fuser Station/Stacker PCA; Distribution 2 of 6	4/2
Fuser Station/Stacker PCA; Distribution 3 of 6	4/3
Fuser Station/Stacker PCA; Distribution 4 of 6	4/4
Fuser Station/Stacker PCA; Distribution 5 of 6	4/5
Fuser Station/Stacker PCA; Distribution 6 of 6	4/6
Paper Edge Monitor Control	4/7

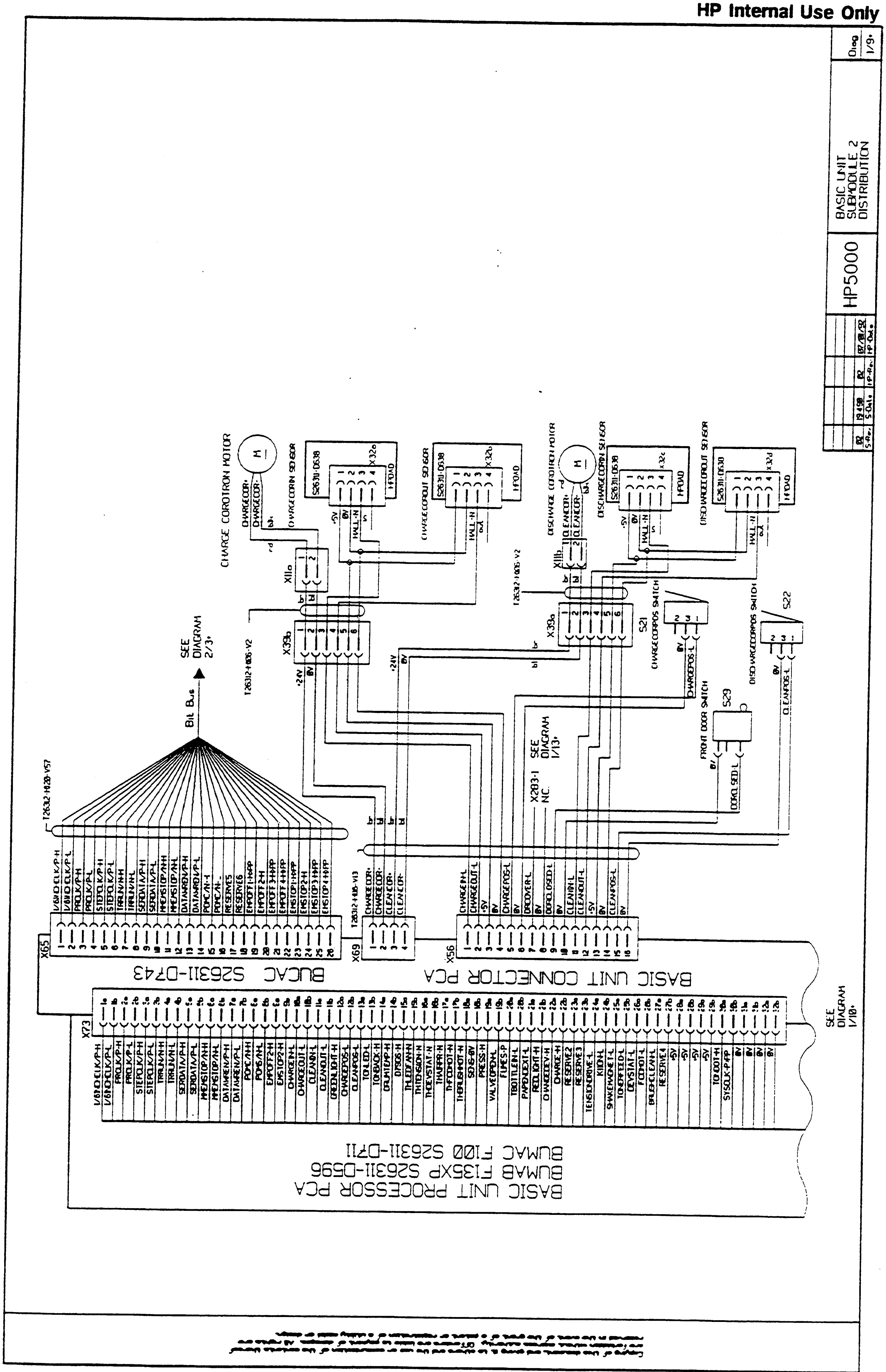

HP5000
MAIN POWER
Diag 1/4
03 S-Rev.
3191 S-Date
02 HP-Rev.
07/20/92 HP-Date
60 Hz X210
50 Hz X210
T26312-H129-V43
Submodule Fan
X261e
SEE DIAGRAM 1/8
to SV3/X116
SEE DIAGRAM 1/16
to SV1/X09 Character Generator
Basic Unit Fan
to Fuser Module D100/X193
SEE DIAGRAM 3/2
SEE DIAGRAM 1/6
X20-3
X20-2
X20-1
X20-4
X20-5
X21-1
X21-2
SUPPRESSION CHOKE
230V 12x14A1
X278
K12
X271e
S26313-F17
Fuser Lamp Control
60 Hz
50 Hz
VACUUM MOTOR
X185
Q2 (16A)
Q3 (32A)
K11
A1
A2
MAIN POWER
L1
L2
L3
N
PE
TERMINAL BLOCK X100
T26312-H129-V28
SEE DIAGRAM 1/5
X3-2
X208-2
X208-1
T26312-H129-V36
K100N-L
K10
30V
Q1 (35A)
T26312-H129-V1
T26312-H129-V27
SEE DIAGRAM 1/5
Varistors
From K11
X202
From K10
X203

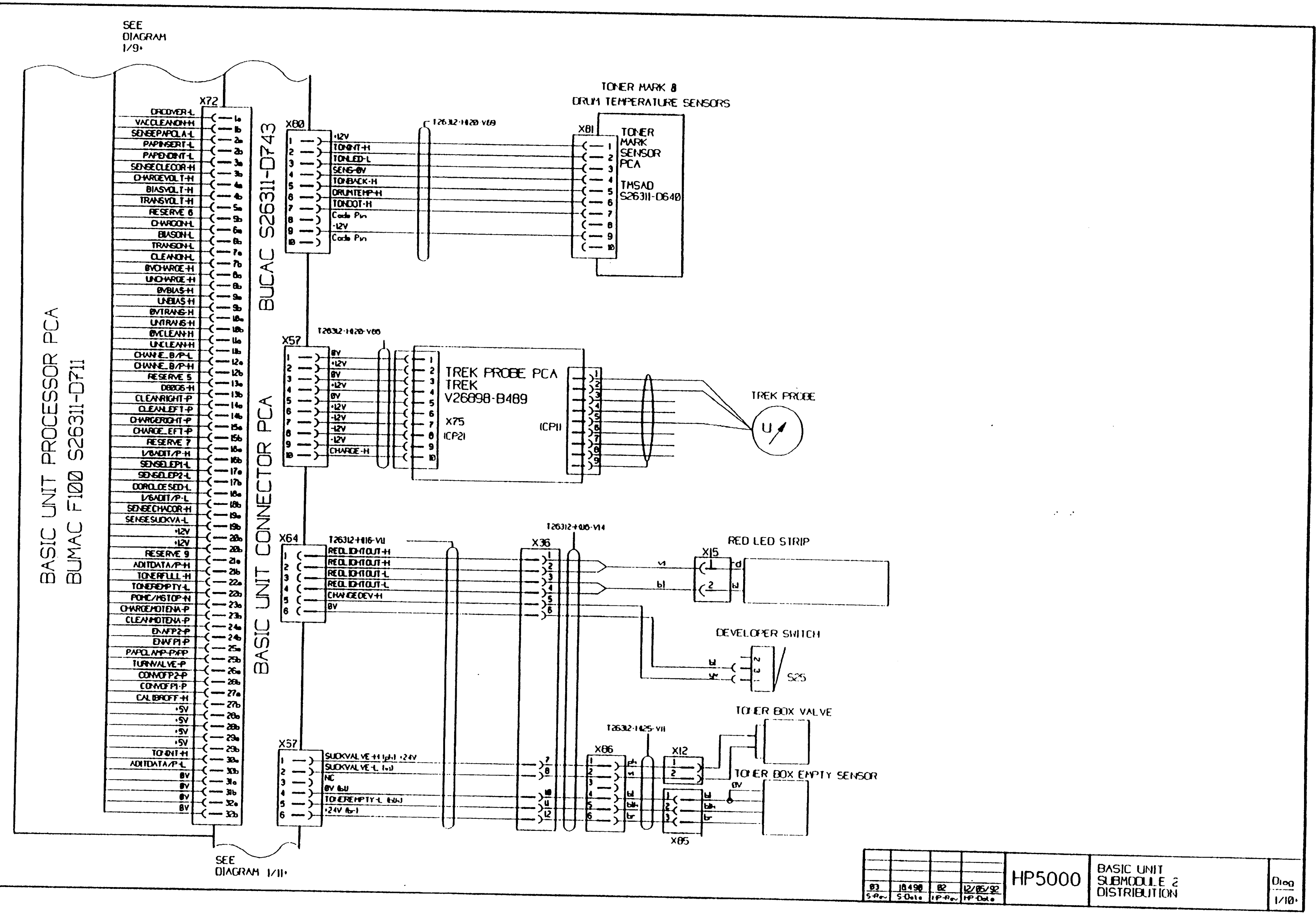

HP5000
POWER CONTROL INTERFACE
Diag
1/5
02
01.03.90
02
07/08/92
S-Rev.
S-Date
HP-Rev.
HP-Date
PCI
POWER CONTROL INTERFACE
S26313-F18
X2
X113
X112
X115
X6
X5
X4
X9
X3
X1
X288
X272-1
X272-2
SEE DIAGRAM 3/1
X130-1
X130-3
SEE DIAGRAM 1/7
SEE DIAGRAM 2/3
to Operator panel S8
T26312-H128-V13
to Fuser Pod -C91/X272
to Main Module X146
T26312-H128-V59
MAIN POWER OFF
0V
ON-L
OENABLEB-N
OENABLEA-N
RESSV2-N
PHASEFAIL-P
ENAGPWR-N
DEVPOWOFF-N
POWERON-N
ENABLEB-N
ENABLEA-N
POWON-L
F. RELAY
A1
A2
+24V
V1
Fuse F2 10 A
Fuse F3 10 A
Fuse F1 0.25 A
230V X7
208V X8
X8 208V 60Hz
X7 230V 50Hz
CHANNEL B
CHANNEL A
12 BPOWER PICK
11 BPOWER HOLD
10 BPOWER COMPLETE
9 BSYSTEM SOURCE
8 BEPO
7 BUNIT SOURCE
6 APOWER PICK
5 APOWER HOLD
4 APOWER COMPLETE
3 ASYSTEM SOURCE
2 AEPO
1 AUNIT SOURCE
REMOTE
4 ENABLEB-N
3 ENABLEA-N
2 ENABLEB+N
1 ENABLEA+N
T26313-D101-V1
CHANNEL A CONNECTOR
CHANNEL B CONNECTOR
REMOTE CONNECTOR
2 GROUND
1 LOCAL-REMOTE
T26312-H129-V8
OPTION
L1
L2
L3
N
vi
bk
br
bl
SEE DIAGRAM 1/4
+30V
K10 ON-L
K10-A1
K10-A2
T26312-H129-V30
SEE DIAGRAM 1/13
S6
LOCAL
REMOTE
NA
Local
GROUND
br
gr

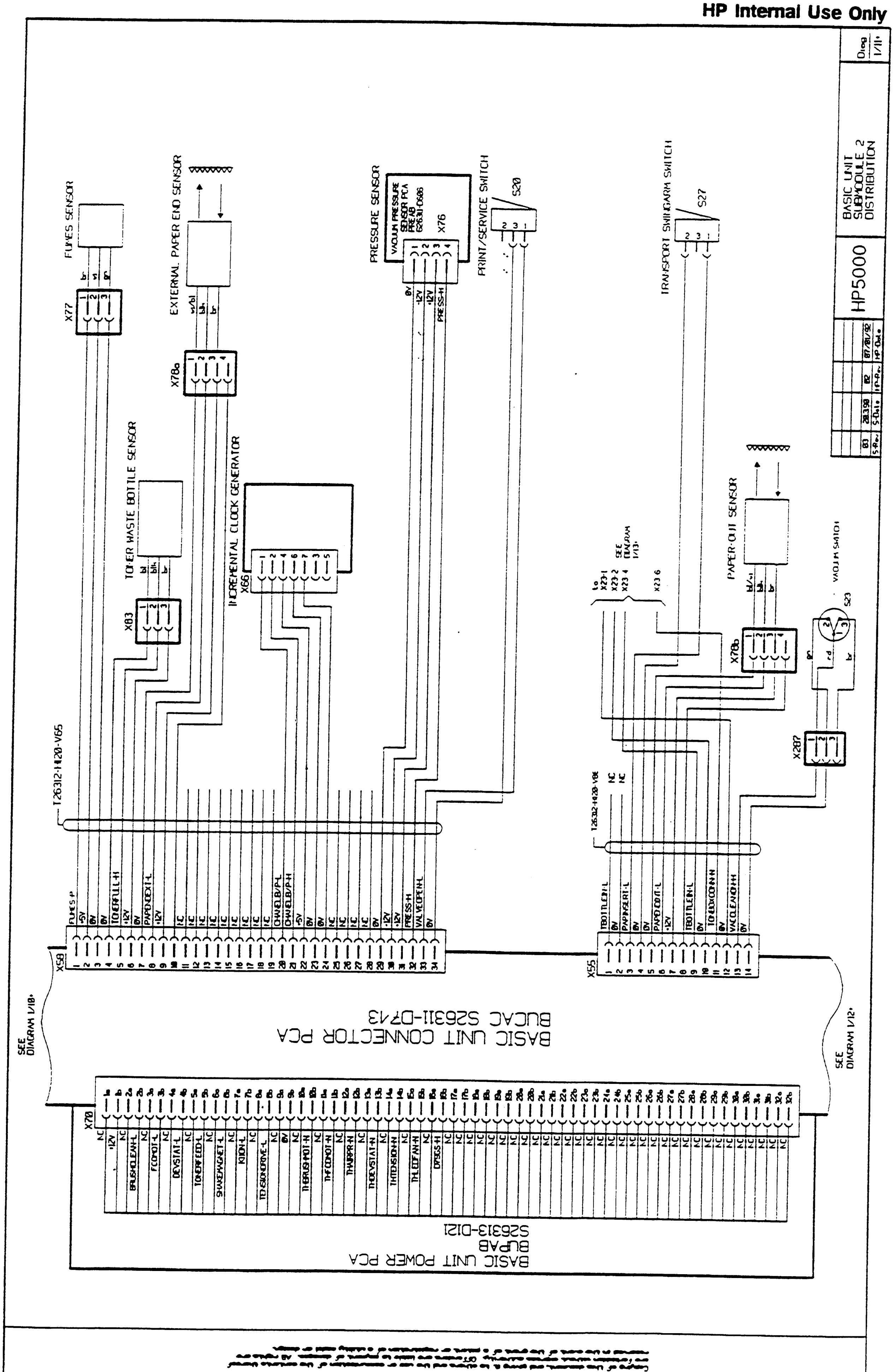

BASIC UNIT POWER PCA DISTRIBUTION
HP5000
Diag 1/6
BASIC UNIT POWER MODULE
S26313-D121 BUPAB
BUCAC
Connector Board (Basic Unit)
S26311-D743
Cleaning Brush Motor
PC Drum Motor
Temp. Sensor
Capacitor
LED ARRAY FAN
Developer Station Fan
Developer Station Motor
Dosage Motor
Developer Bias Voltage
Developer Station
SEE DIAGRAM 1/4
K11-A2
K11-A1
0V
230V to K11
Fine Filter Vacuum Sensor
SEE DIAGRAM 1/8
Toner Feed Vibrator Solenoid
X54
X58
X79
X261f
X38
X33
X46
X37
X26
X25
X24
X21
X20
X28
X30
X34
X70
23a
26b
Reserve N L3
Reserve L1
X210-10
X210-8
X261-2
X210-5
X210-6
FECMOT-L1
FECMOT-L2
FECMOT-L3
THERMO-L1
NC
FECMOT-HP
THFECMOT2
THBRUSHMOT2
THARRAY2
LEDFAN
DEVSTAT
TONERMOT
THERMO-L1
N L3
BRUSHCLEAN-L
FECMOT
DEVSTAT-L
TONERFEED-L
SHAKEMAGNET-L
KUON-L

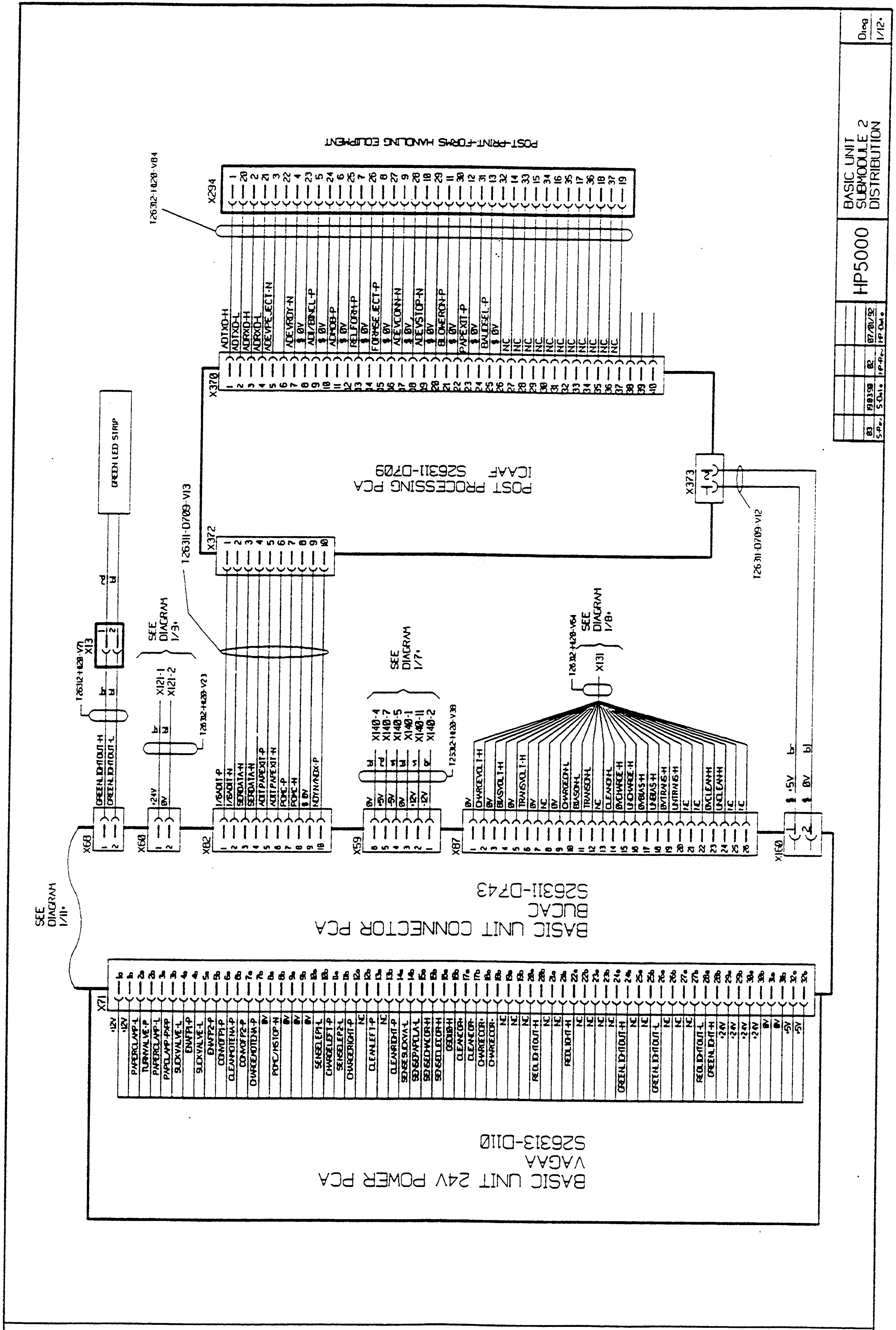

CONTROLLER POWER SUPPLY SV2
+/-5V, +/-12V, DISTRIBUTION
HP5000
Diag 1/7
SM4 MOTHERBOARD PCA
S26311-E165
THERMAL SWITCHES
POWER SUPPLY SV 2
CONTROLLER
S26313-E41
X140
X139
X138
X228
X141
X238
X234
X229
X142
X249
X112-1
X112-2
Fan Assembly
SEE DIAGRAM 2/3
SEE DIAGRAM 2/5
SEE DIAGRAM 1/16
SEE DIAGRAM 1/12
SEE DIAGRAM 2/1
SEE DIAGRAM 1/5
SEE DIAGRAM 4/3
J7/X278
T26311-H00-V73
T26311-H00-V71
T26311-H00-V53
T26311-H00-V51
T26311-H00-V1
T26311-H00-V78
+5V
0V
+12V
-12V
-5V
-5.2V

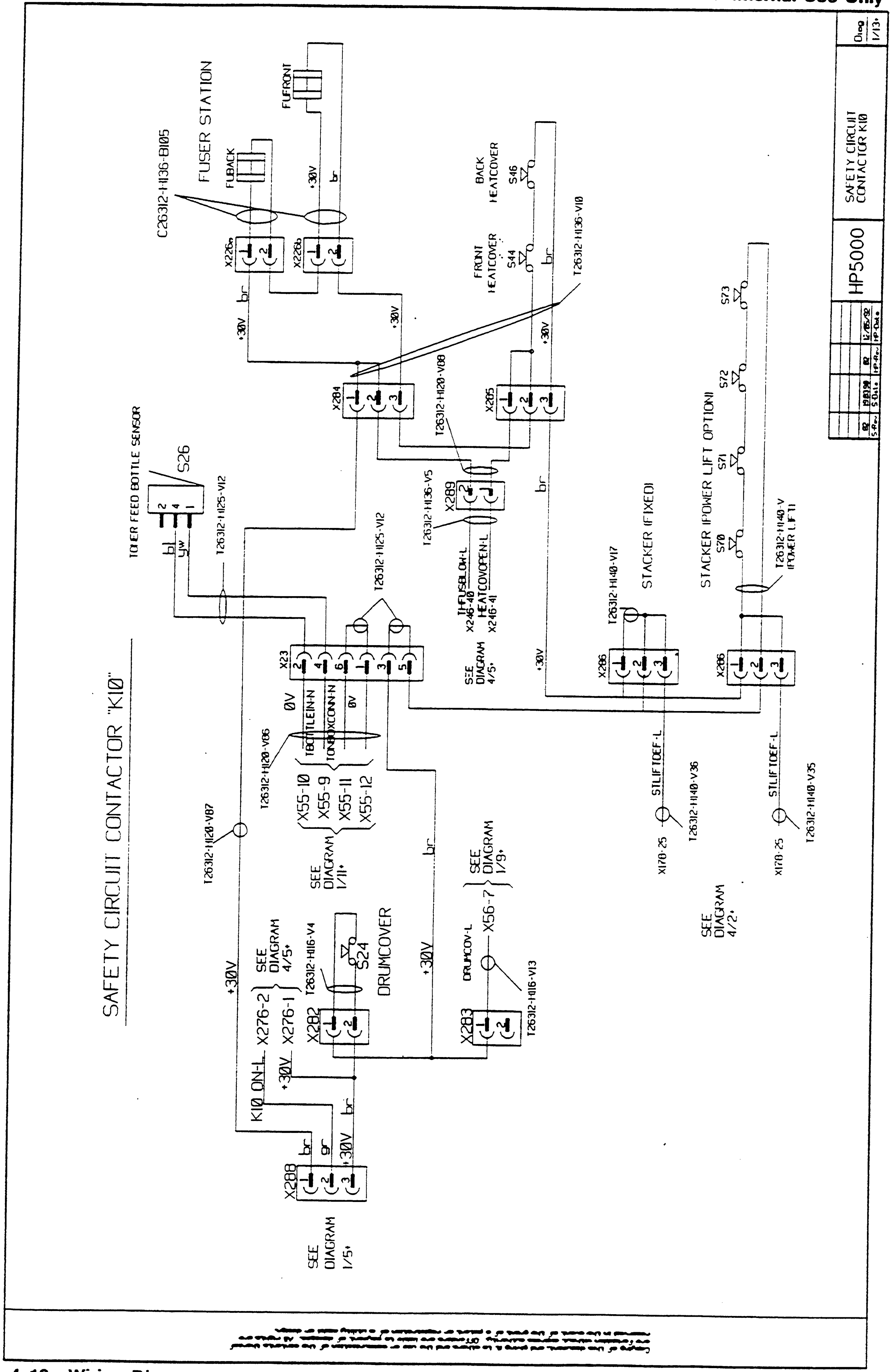

HP5000
SPECIAL VOLTAGE P/S SV3
HIGH-VOLTAGE P/S SV4
DISTRIBUTION
Diag
1/8+
POWER SUPPLY SV 4
HIGH VOLTAGE
S26313-E25
POWER SUPPLY SV 3
SPECIAL VOLTAGES
+24 V, +40V
S26313-E37
X137
X132
X133
X134
X131
X129
Magnetic Roller Bias
X37
X33
Developer Bias Voltage
Developer Station
Discharge Corotron
10 KV 50Hz 5mA
Transfer Corotron
100-450 uA -6 KV
Charge Corotron
+10 KV 1.5 mA
X87
SEE DIAGRAM 1/12+
0V
CHAVLT-H
0V
BIASVLT-H
0V
TRAVLT-H
0V
DU07GS-H
0V
CHARGON-L
BIASON-L
TRANSON-L
NC
CLEANON-L
BVCHARGE-H
UNCHARGE-H
BVBIAS-H
UNBIAS-H
BVTRANS-H
UNTRANS-H
NC
NC
BVCLEAN-H
UNCLEAN-H
NC
NC
+24V
0V
X117/1
X118/1
X117/2
X118/2
X117 and X118
50 Hz Regulated Transformer
X117 and X118
60 Hz Regulated Transformer
X116
T26312+A20-V21
to X210/5/9
SEE DIAGRAM 1/4+
X122
X121
X119
X116
+24V
+40V
0V
to X10
SEE DIAGRAM 2/1+
T26312-H120-V2
T26312+A20-V3
to X250
SEE DIAGRAM 4/4+
to X240
SEE DIAGRAM 2/4+
to X210
SEE DIAGRAM 1/4+
T26312+A20-V23
X60-1
X60-2
SEE DIAGRAM 1/12+

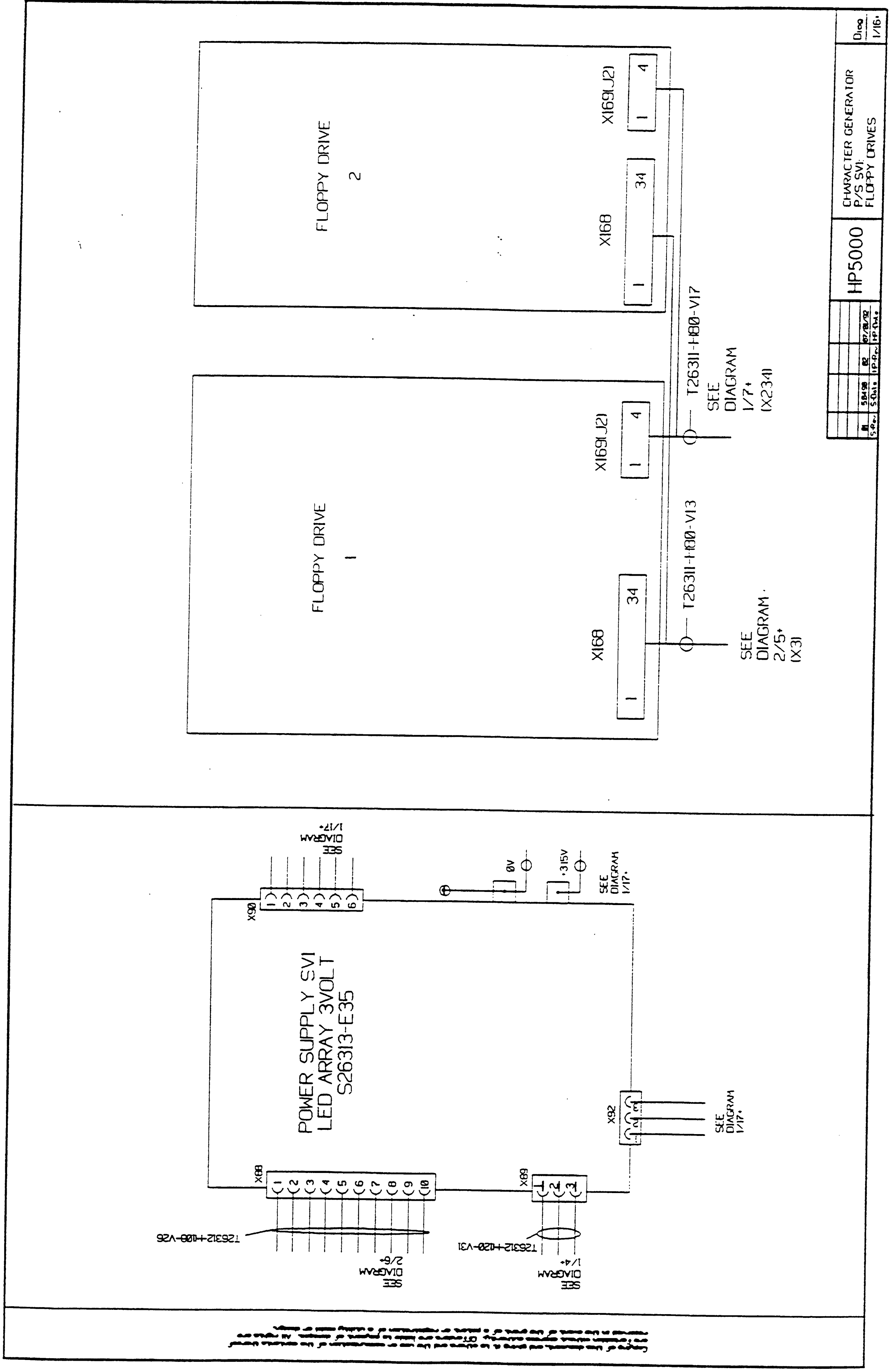

BASIC UNIT
SUBMODULE 2
DISTRIBUTION
HP5000
Diag 1/9
BASIC UNIT PROCESSOR PCA
BUMAB F135XP S26311-D596
BUMAC F100 S26311-D711
BASIC UNIT CONNECTOR PCA
BUCAC S26311-D743
X73
X65
X69
X56
SEE DIAGRAM 1/10
SEE DIAGRAM 2/3
Bit Bus
T26312-H128-V57
T26312-H106-V13
T26312-H106-V2
X39a
X39b
X11a
X11b
CHARGE COROTRON MOTOR
DISCHARGE COROTRON MOTOR
M
S26311-D638
X32
HFOAD
S21
CHARGECORPOS SWITCH
S22
DISCHARGECORPOS SWITCH
S29
FRONT DOOR SWITCH
SEE DIAGRAM 1/13
X283-1
NC
+24V
0V
+5V
HALL-N

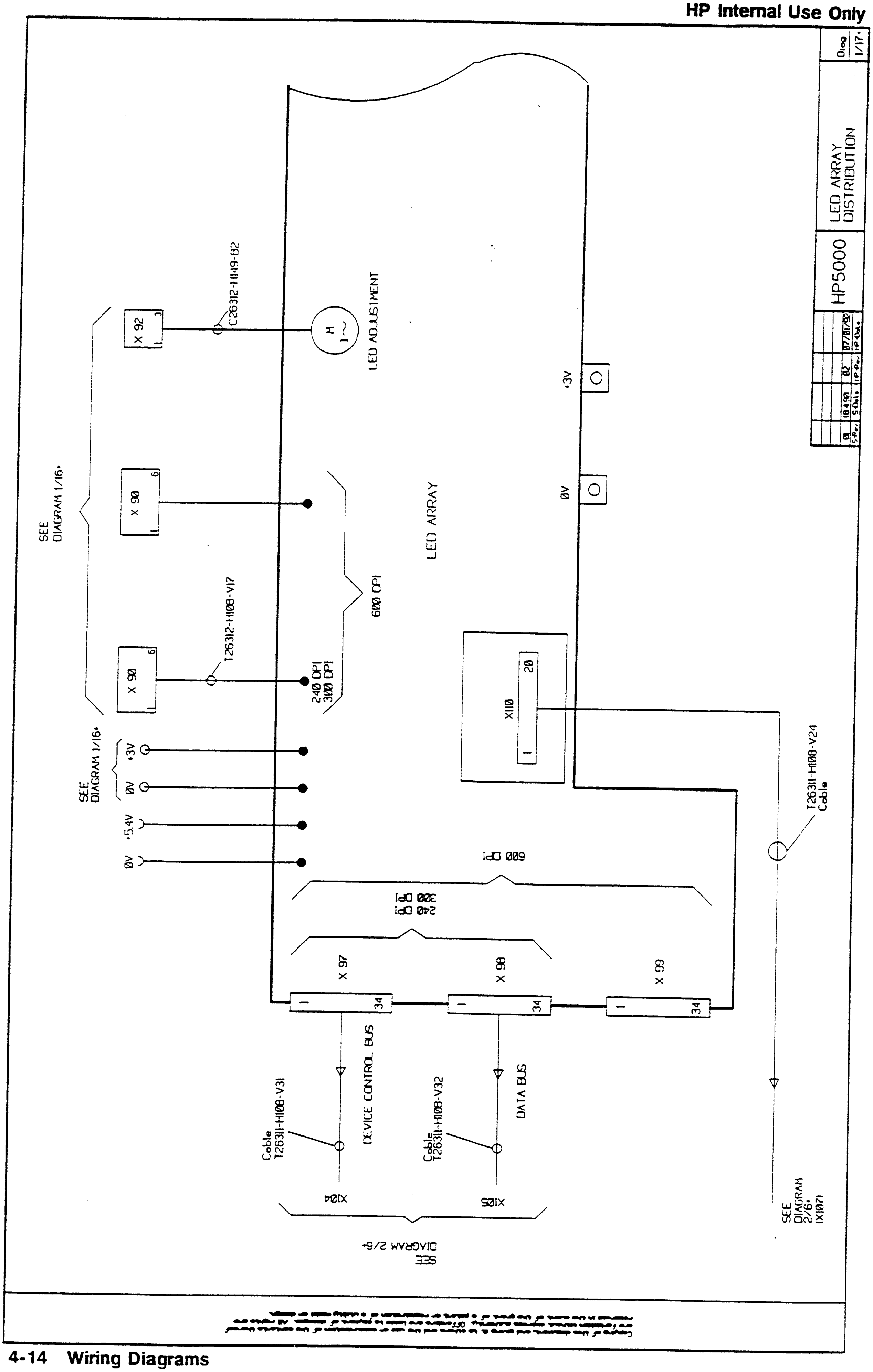

SEE DIAGRAM 1/9•
BASIC UNIT PROCESSOR PCA
BUMAC F100 S26311-D711
X72
DRDOVER-L 1a
VACCLEANON-H 1b
SENSEPAPCLA-L 2a
PAPINSERT-L 2b
PAPENDINT-L 3a
SENSECLECOR-H 3b
CHARGEVOLT-H 4a
BIASVOLT-H 4b
TRANSVOLT-H 5a
RESERVE 6 5b
CHARGON-L 6a
BIASON-L 6b
TRANSON-L 7a
CLEANON-L 7b
BVCHARGE-H 8a
UNCHARGE-H 8b
BVBIAS-H 9a
UNBIAS-H 9b
BVTRANS-H 10a
UNTRANS-H 10b
BVCLEAN-H 11a
UNCLEAN-H 11b
CHANNE_B/P-L 12a
CHANNE_B/P-H 12b
RESERVE 5 13a
DBBG6-H 13b
CLEANRIGHT-P 14a
CLEANLEFT-P 14b
CHARGERIGHT-P 15a
CHARGE_EFT-P 15b
RESERVE 7 16a
V6ADIT/P-H 16b
SENSELEP1-L 17a
SENSELEP2-L 17b
DORCLOESED-L 18a
V6ADIT/P-L 18b
SENSECHACOR-H 19a
SENSESUCKVA-L 19b
+12V 20a
+12V 20b
RESERVE 9 21a
ADITDATA/P-H 21b
TONERFULL-H 22a
TONEREMPTY-L 22b
POMC/MSTOP-N 23a
CHARGEMOTENA-P 23b
CLEANMOTENA-P 24a
ENAFP2-P 24b
ENAFP1-P 25a
PAPCLAMP-PXPP 25b
TURNVALVE-P 26a
CONVOFP2-P 26b
CONVOFP1-P 27a
CALIBROFF-H 27b
+5V 28a
+5V 28b
+5V 29a
+5V 29b
TONINT-H 30a
ADITDATA/P-L 30b
0V 31a
0V 31b
0V 32a
0V 32b
SEE DIAGRAM 1/11•
BUCAC S26311-D743
BASIC UNIT CONNECTOR PCA
X80
1 +12V
2 TONINT-H
3 TONLED-L
4 SENS-0V
5 TONBACK-H
6 DRUMTEMP-H
7 TONDOT-H
8 Code Pin
9 -12V
10 Code Pin
T26312-1020-V09
TONER MARK & DRUM TEMPERATURE SENSORS
X81
1 2 3 4 5 6 7 8 9 10
TONER MARK SENSOR PCA
TMSAD S26311-D640
X57
T26312-1020-V00
1 0V
2 +12V
3 0V
4 +12V
5 0V
6 +12V
7 -12V
8 -12V
9 -12V
10 CHARGE-H
1 2 3 4 5 6 7 8 9 10
TREK PROBE PCA
TREK
V26898-B489
X75
(CP2)
(CP1)
1 2 3 4 5 6 7 8 9
TREK PROBE
U
X64
T26312+1016-V11
1 REDLIGHTOUT-H
2 REDLIGHTOUT-H
3 REDLIGHTOUT-L
4 REDLIGHTOUT-L
5 CHANGEDEV-H
6 0V
T26312+1016-V14
X36
1 2 3 4 5 6
7 8 10 11 12
RED LED STRIP
X15
vi
bl
1 2
rd
bl
DEVELOPER SWITCH
bl
ye
2 3
S25
X57
1 SUCKVALVE-H (ph) +24V
2 SUCKVALVE-L (vi)
3 NC
4 0V (bl)
5 TONEREMPTY-L (bk)
6 +24V (br)
T26312-1025-V11
X86
1 2 3 4 5 6
ph
vi
bl
blk
br
X12
1 2
X85
1 2 3
bl
blk
br
0V
TONER BOX VALVE
TONER BOX EMPTY SENSOR
03 S-Rev
10490 S-Date
02 HP-Rev
12/05/92 HP-Date
HP5000
BASIC UNIT SUBMODULE 2 DISTRIBUTION
Diag 1/10•

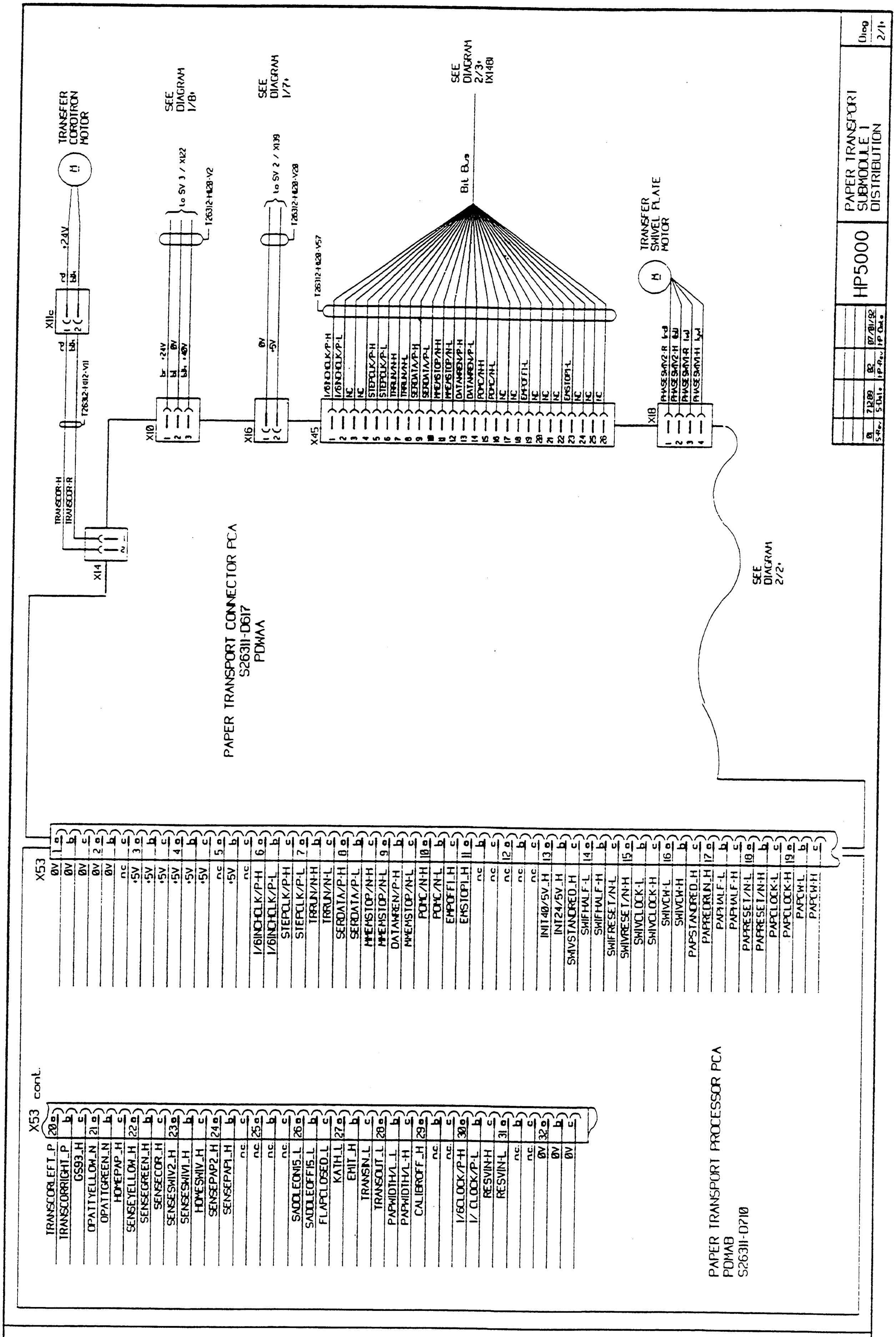

Diag 1/11
BASIC UNIT SUBMODULE 2 DISTRIBUTION
HP5000
FUMES SENSOR
X77
EXTERNAL PAPER END SENSOR
X78a
PRESSURE SENSOR
VACUUM PRESSURE SENSOR PCA PREAB 62631-D686
X76
PRINT/SERVICE SWITCH
S20
TRANSPORT SWINGARM SWITCH
S27
TONER WASTE BOTTLE SENSOR
X83
INCREMENTAL CLOCK GENERATOR
X66
PAPER-OUT SENSOR
X78b
VACUUM SWITCH
S23
X207
SEE DIAGRAM 1/13
T26312-H20-V65
T26312-H20-V6E
X58
FUMES-P
+5V
0V
TONERFULL-H
+12V
PAPENDEXT-L
CHANELB/P-L
CHANELB/P-H
-12V
PRESS-H
VALVEOPEN-L
NC
X55
TBOTTLEIN-L
PAPINSERT-L
PAPEROUT-L
TONERDXCONN-H
VACCLEANON-H
SEE DIAGRAM 1/10
SEE DIAGRAM 1/12
BASIC UNIT CONNECTOR PCA
BUCAC S26311-D7A3
X70
BRUSHCLEAN-L
FCOMOT-L
DEVSTAT-L
TONERFEED-L
SHAKEMAGNET-L
KION-L
TENSIONDRIVE-L
THBRUSHMOT-H
THFCOMOT-H
THAIRPR-H
THDEVSTAT-H
THTENSION-H
THLEDFAN-H
DPSUS-H
BASIC UNIT POWER PCA
BUPAB
S26313-D121

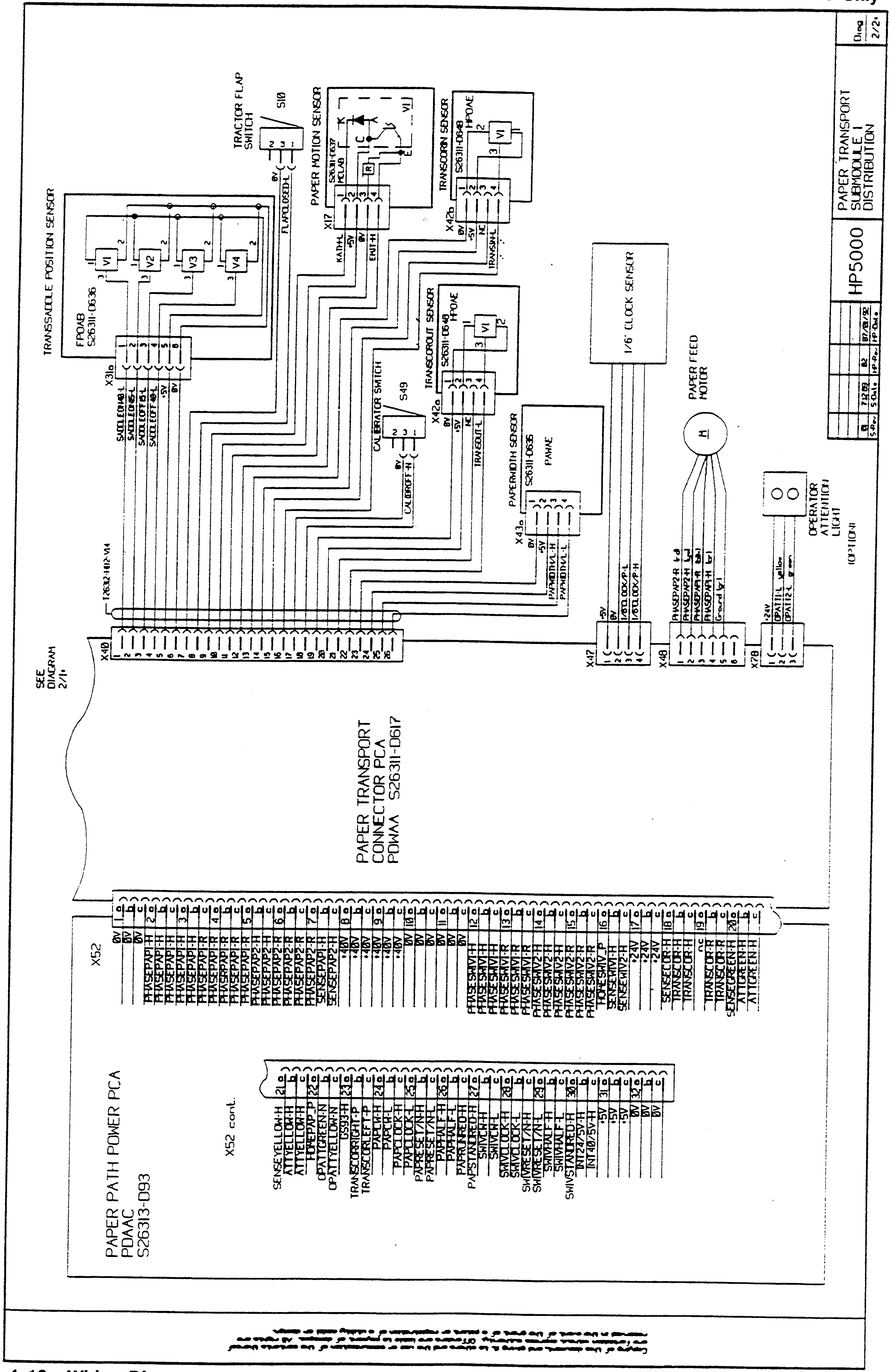

HP5000
BASIC UNIT
SUBMODULE 2
DISTRIBUTION
Diag 1/12•
BASIC UNIT 24V POWER PCA
VAGAA
S26313-D110
BASIC UNIT CONNECTOR PCA
BUCAC
S26311-D743
POST PROCESSING PCA
ICAAF S26311-D709
POST-PRINT-FORMS HANDLING EQUIPMENT
GREEN LED STRIP
X294
X370
X372
X373
X13
X68
X60
X82
X59
X87
X160
X71
X131
SEE DIAGRAM 1/3•
SEE DIAGRAM 1/7•
SEE DIAGRAM 1/8•
SEE DIAGRAM 1/11•
T26312-1420-V84
T26311-D709-V13
T26311-D709-V12
T26312-1420-V71
T26312-1420-V23
T26312-1420-V64
T25312-1420-V30
X121-1
X121-2
X140-4
X140-7
X140-5
X140-1
X140-8
X140-2
+5V
0V
br
bl

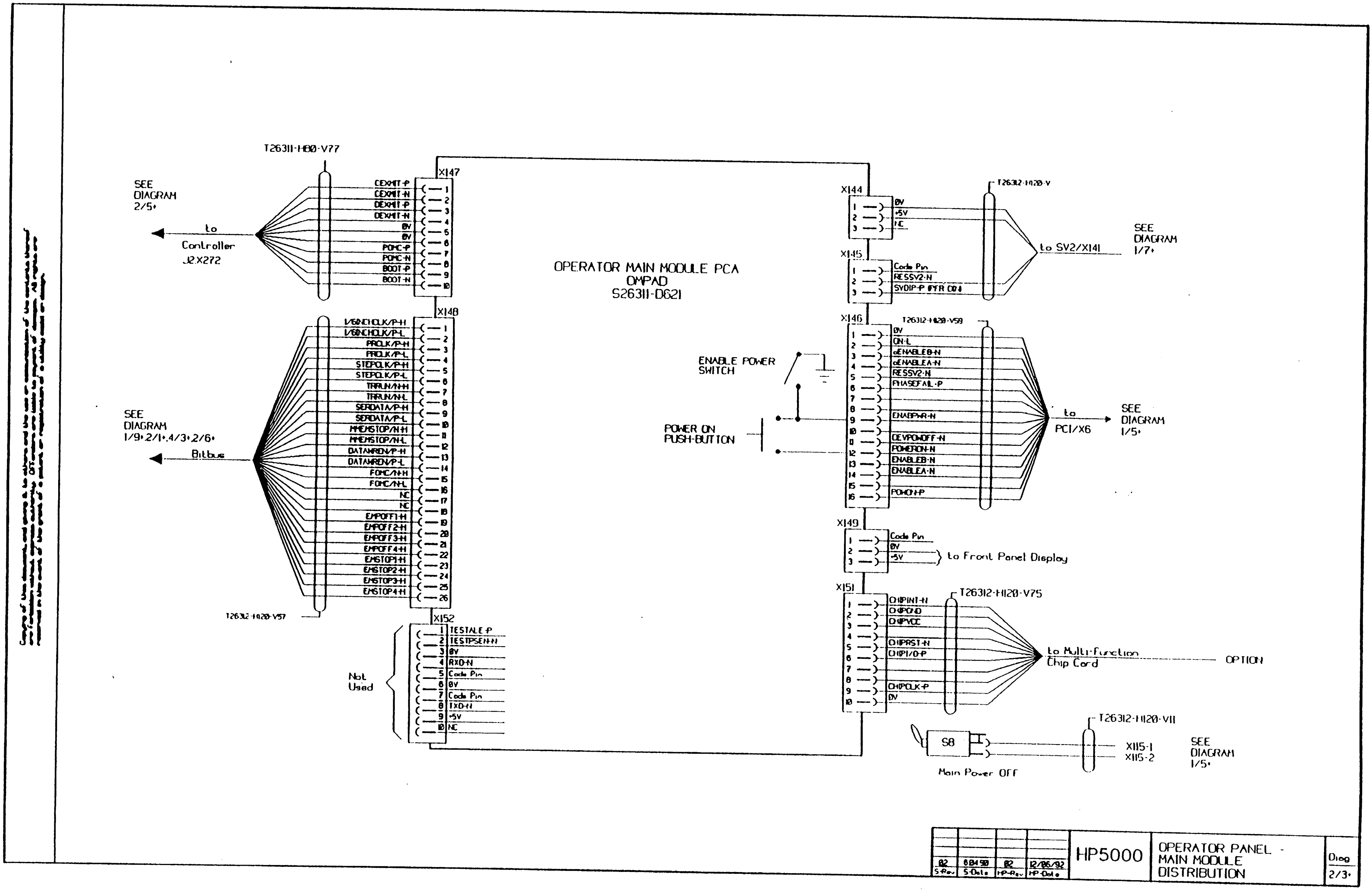

SAFETY CIRCUIT CONTACTOR "K10"
FUSER STATION
C26312-H136-B105
FUBACK
FUFRONT
X226a
X226b
+30V
br
BACK HEATCOVER
S46
FRONT HEATCOVER
S44
T26312-H136-V10
X284
X285
T26312-H120-V08
TONER FEED BOTTLE SENSOR
S26
bl
yw
T26312-H125-V12
X289
T26312-H136-V5
THFUSBLOW-L
HEATCOVOPEN-L
X246-40
X246-41
SEE DIAGRAM 4/5
X23
0V
TBOTTLEIN-N
TONBOXCONN-N
T26312-H120-V06
X55-10
X55-9
X55-11
X55-12
SEE DIAGRAM 1/11
T26312-H120-V07
STACKER (FIXED)
STACKER (POWER LIFT OPTION)
S70
S71
S72
S73
T26312-H140-V17
T26312-H140-V (POWER LIFT)
X286
STLIFTDEF-L
T26312-H140-V36
T26312-H140-V35
X170-25
SEE DIAGRAM 4/2
+30V
X276-2
X276-1
SEE DIAGRAM 4/5
T26312-H116-V4
S24
DRUMCOVER
X282
DRUMCOV-L
X56-7
SEE DIAGRAM 1/9
T26312-H116-V13
X283
K10 ON-L
gr
X288
SEE DIAGRAM 1/5
HP5000
SAFETY CIRCUIT CONTACTOR K10
Diag 1/13
02
19.03.90
12/05/92

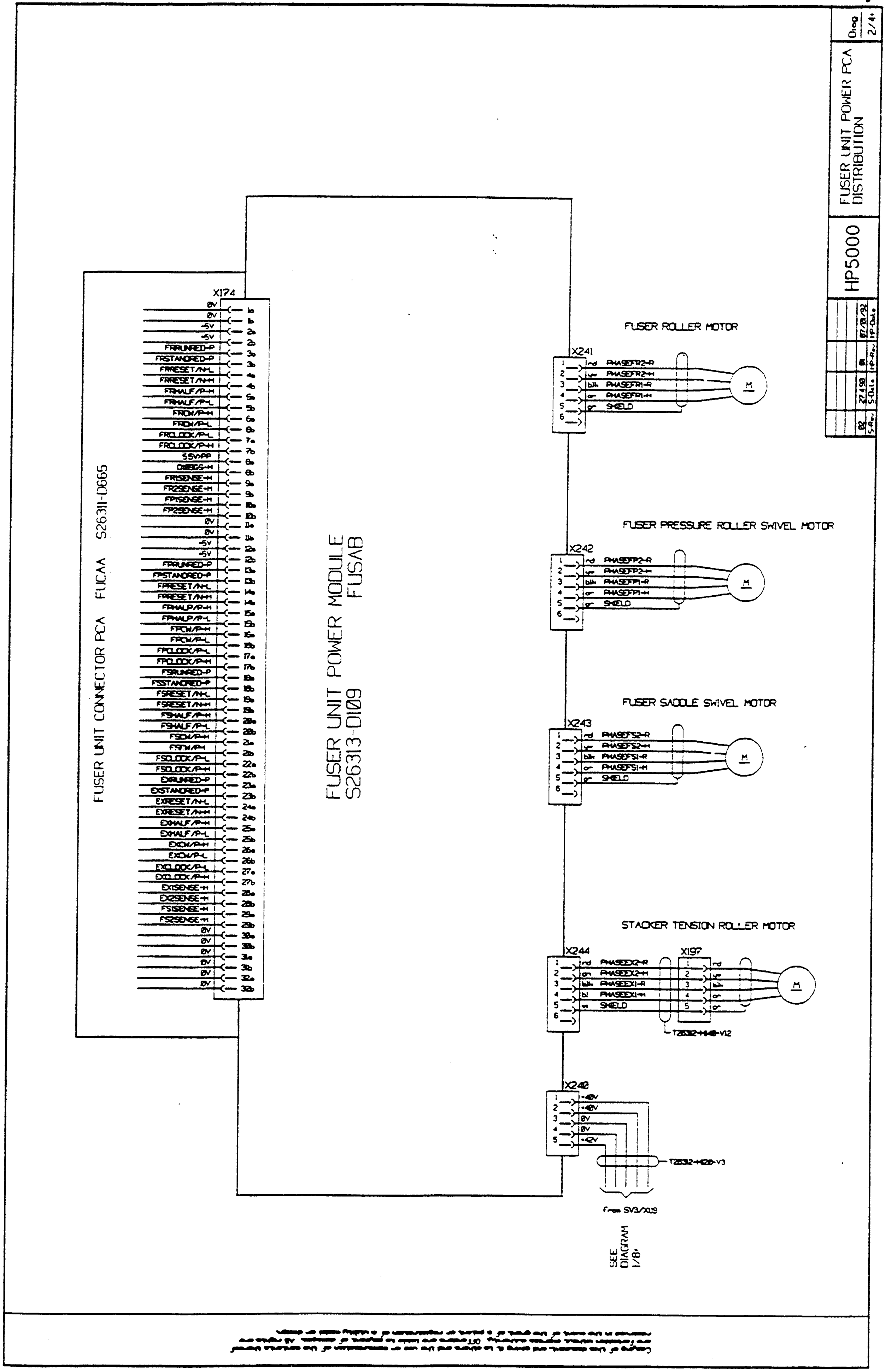

FLOPPY DRIVE
2
X168
1
34
X169(J2)
1
4
FLOPPY DRIVE
1
X168
34
1
X169(J2)
1
4
T26311-H00-V17
SEE
DIAGRAM
1/7+
(X234)
T26311-H00-V13
SEE
DIAGRAM
2/5+
(X3)
POWER SUPPLY SVI
LED ARRAY 3VOLT
S26313-E35
X90
1
2
3
4
5
6
SEE
DIAGRAM
1/17+
0V
+315V
SEE
DIAGRAM
1/17+
X92
SEE
DIAGRAM
1/17+
X88
1
2
3
4
5
6
7
8
9
10
X89
1
2
3
T26312-H00-V26
SEE
DIAGRAM
2/6+
T26312-H20-V31
SEE
DIAGRAM
1/4+
HP5000
CHARACTER GENERATOR
P/S SVI
FLOPPY DRIVES
Diag
1/16+

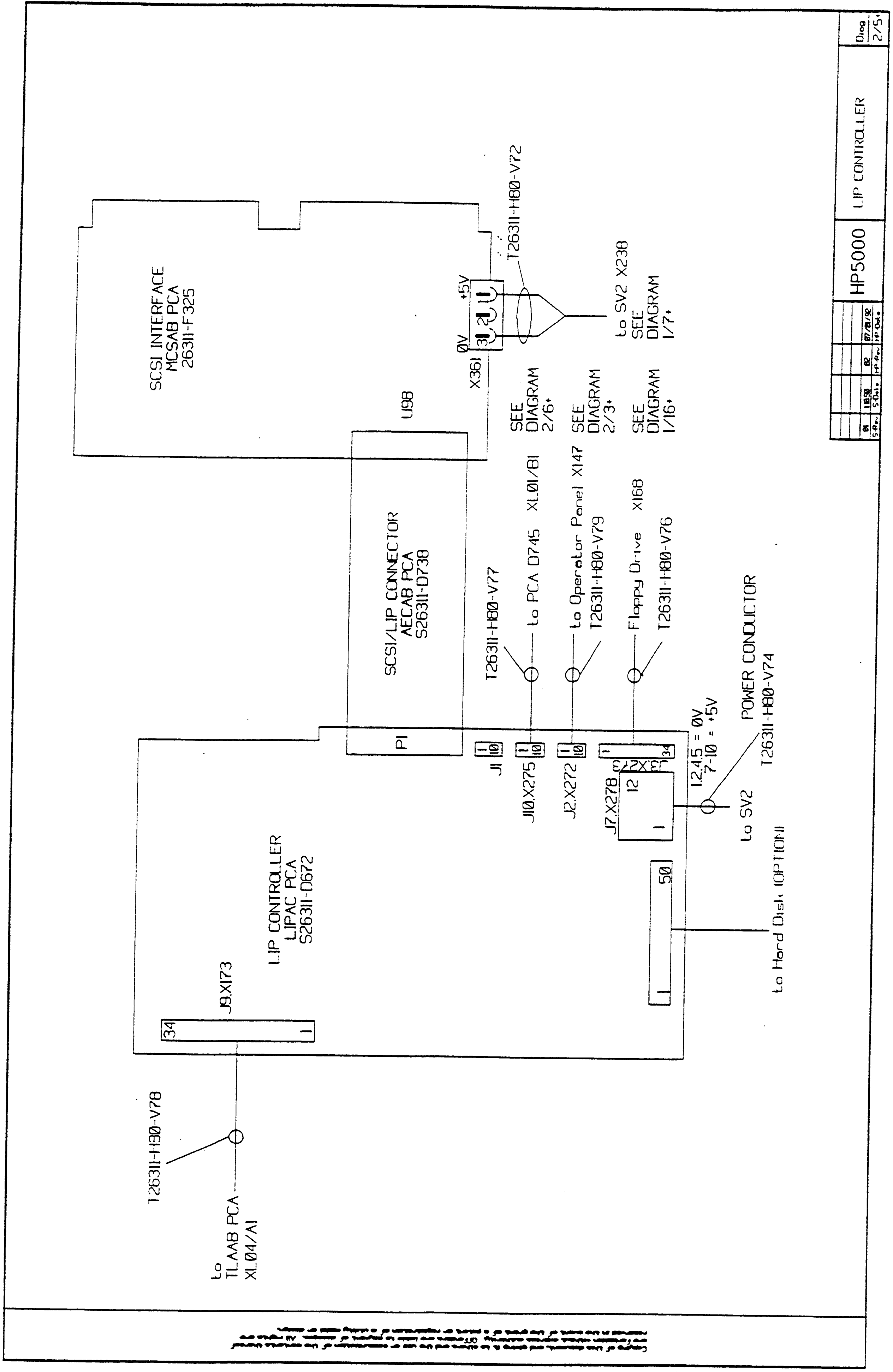

Diag 1/17
HP5000
LED ARRAY DISTRIBUTION
01 18.4.90 02 07/01/92
LED ADJUSTMENT
M
C26312-H149-B2
X 92
SEE DIAGRAM 1/16
X 90
X 90
T26312-H108-V17
240 DPI
300 DPI
600 DPI
LED ARRAY
0V
+3V
SEE DIAGRAM 1/16
+3V
0V
+5.4V
0V
X110
1
20
T26311-H108-V24 Cable
240 DPI
300 DPI
600 DPI
X 97
X 98
X 99
1
34
DEVICE CONTROL BUS
DATA BUS
Cable T26311-H108-V31
Cable T26311-H108-V32
X104
X105
SEE DIAGRAM 2/6
SEE DIAGRAM 2/6 (X107)

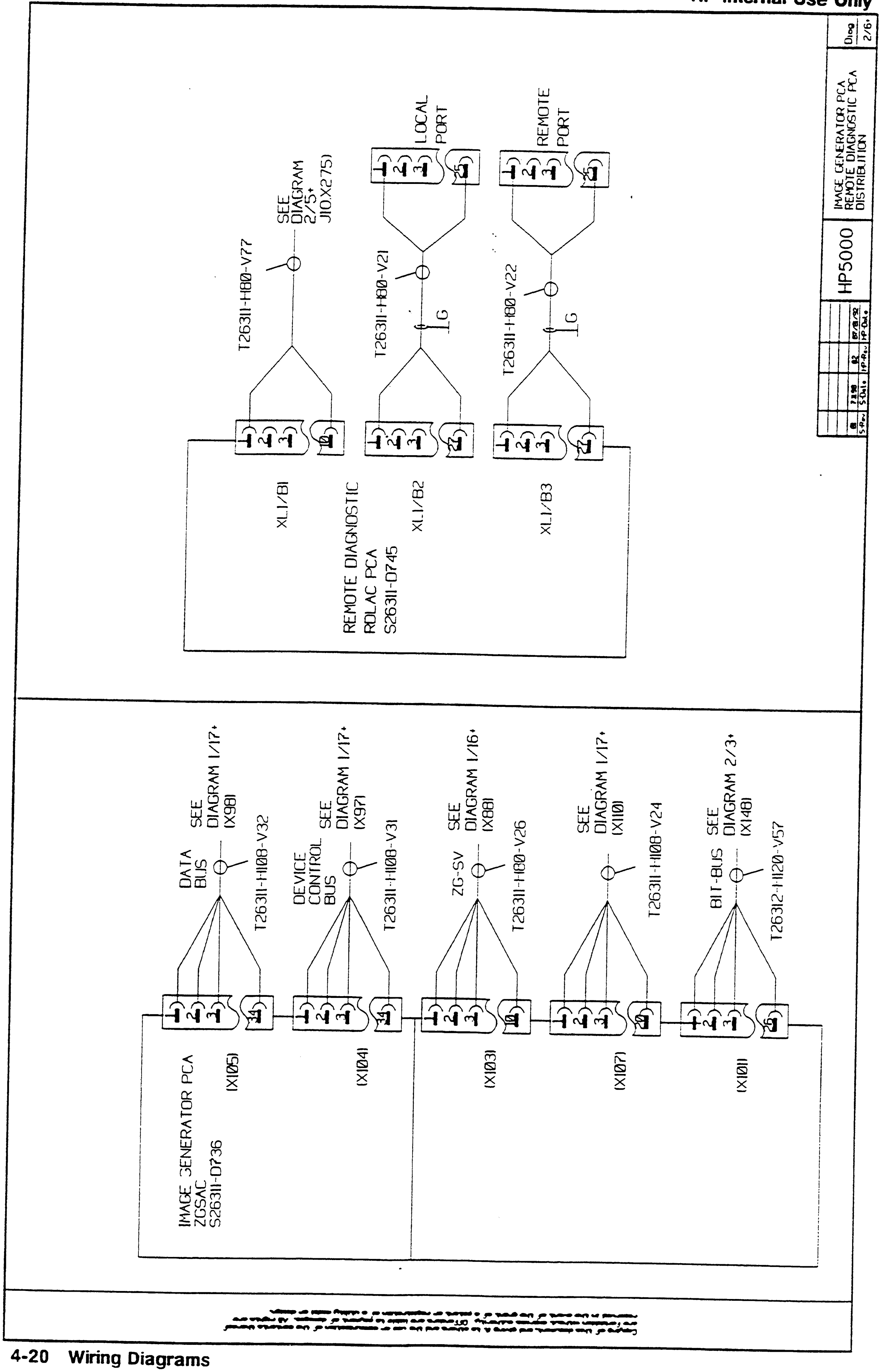

PAPER TRANSPORT
SUBMODULE 1
DISTRIBUTION
HP5000
Diag 2/1
TRANSFER COROTRON MOTOR
M
TRANSFER SWIVEL PLATE MOTOR
SEE DIAGRAM 1/8
SEE DIAGRAM 1/7
SEE DIAGRAM 2/3 (X148)
SEE DIAGRAM 2/2
to SV 3 / X22
to SV 2 / X139
T26312-H128-V2
T26312-H128-V8
T26312-H128-V57
T26312-H112-V11
Bit Bus
X11c
X10
X16
X45
X18
X14
+24V
rd
bk
0V
+5V
+40V
TRANSCOR-H
TRANSCOR-R
1/6INCHCLK/P-H
1/6INCHCLK/P-L
NC
STEPCLK/P-H
STEPCLK/P-L
TRRUN/N-H
TRRUN/N-L
SERDATA/P-H
SERDATA/P-L
MMEMSTOP/N-H
MMEMSTOP/N-L
DATAMREN/P-H
DATAMREN/P-L
POMC/N-H
POMC/N-L
EMPOFFI-L
EMSTOPI-L
PHASESWIV2-R
PHASESWIV2-H
PHASESWIV1-R
PHASESWIV1-H
PAPER TRANSPORT CONNECTOR PCA
S26311-D617
PDMAA
X53
INIT40/5V_H
INT24/5V_H
SWIVSTANDRED_H
SWIFHALF-L
SWIFHALF-H
SWIFRESET/N-L
SWIVRESET/N-H
SWIVCLOCK-L
SWIVCLOCK-H
SWIVCW-L
SWIVCW-H
PAPSTANDRED_H
PAPREDRUN_H
PAPHALF-L
PAPHALF-H
PAPRESET/N-L
PAPRESET/N-H
PAPCLOCK-L
PAPCLOCK-H
PAPCW-L
PAPCW-H
EMPOFFI_H
EMSTOPI_H
nc
X53 cont.
TRANSCORLEFT_P
TRANSCORRIGHT_P
GS93_H
OPATTYELLOW_N
OPATTGREEN_N
HOMEPAP_H
SENSEYELLOW_H
SENSEGREEN_H
SENSECOR_H
SENSESWIV2_H
SENSESWIV1_H
HOMESWIV_H
SENSEPAP2_H
SENSEPAP1_H
SADDLEON15_L
SADDLEOFF15_L
FLAPCLOSED_L
KATH_L
EMIT_H
TRANSIN_L
TRANSOUT_L
PAPWIDTH/L_L
PAPWIDTH/L_H
CALIBROFF_H
1/6CLOCK/P-H
1/ CLOCK/P-L
RESVIN-H
RESVIN-L
PAPER TRANSPORT PROCESSOR PCA
PDMAB
S26311-D710

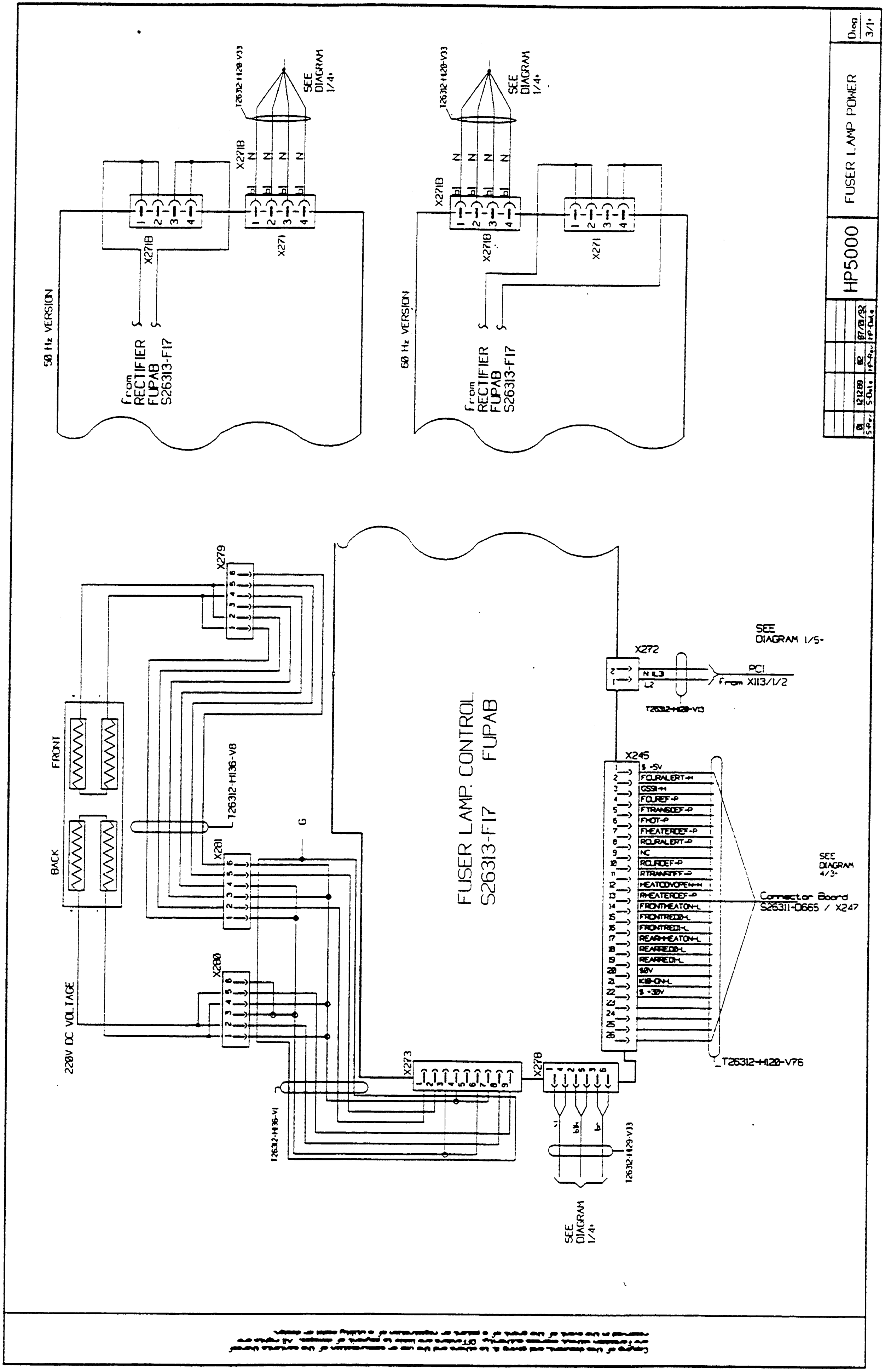

HP5000
PAPER TRANSPORT SUBMODULE 1 DISTRIBUTION
Diag 2/2
TRANSSADDLE POSITION SENSOR
FPOAB S26311-D636
V1 V2 V3 V4
X31b
SADDLEON48-L
SADDLEON15-L
SADDLEOFF15-L
SADDLEOFF48-L
+5V
0V
PAPER MOTION SENSOR
S26311-D637 MCLAB
X17
KATH-L
+5V
0V
EMIT-H
TRACTOR FLAP SWITCH
S10
FLAPCLOSED-L
TRANSCORIN SENSOR
S26311-D648 HPOAE
X42b
NC
TRANSIN-L
TRANSCOROUT SENSOR
S26311-D648 HPOAE
X42a
TRANSOUT-L
CALIBRATOR SWITCH
S49
CALIBROFF-N
PAPERWIDTH SENSOR
S26311-D635
PAHAE
X43a
PAPWIDTH1-H
PAPWIDTH2-L
1/6" CLOCK SENSOR
X47
1/6CLOCK/P-L
1/6CLOCK/P-H
PAPER FEED MOTOR
M
X48
PHASEPAP2-R
PHASEPAP2-H
PHASEPAP1-R
PHASEPAP1-H
Ground
OPERATOR ATTENTION LIGHT (OPTION)
X70
+24V
OPATI1-L yellow
OPATI2-L green
T26312-1012-V14
X40
SEE DIAGRAM 2/1
PAPER TRANSPORT CONNECTOR PCA
PDWAA S26311-D617
X52
X52 cont.
PAPER PATH POWER PCA
PDAAC
S26313-D93

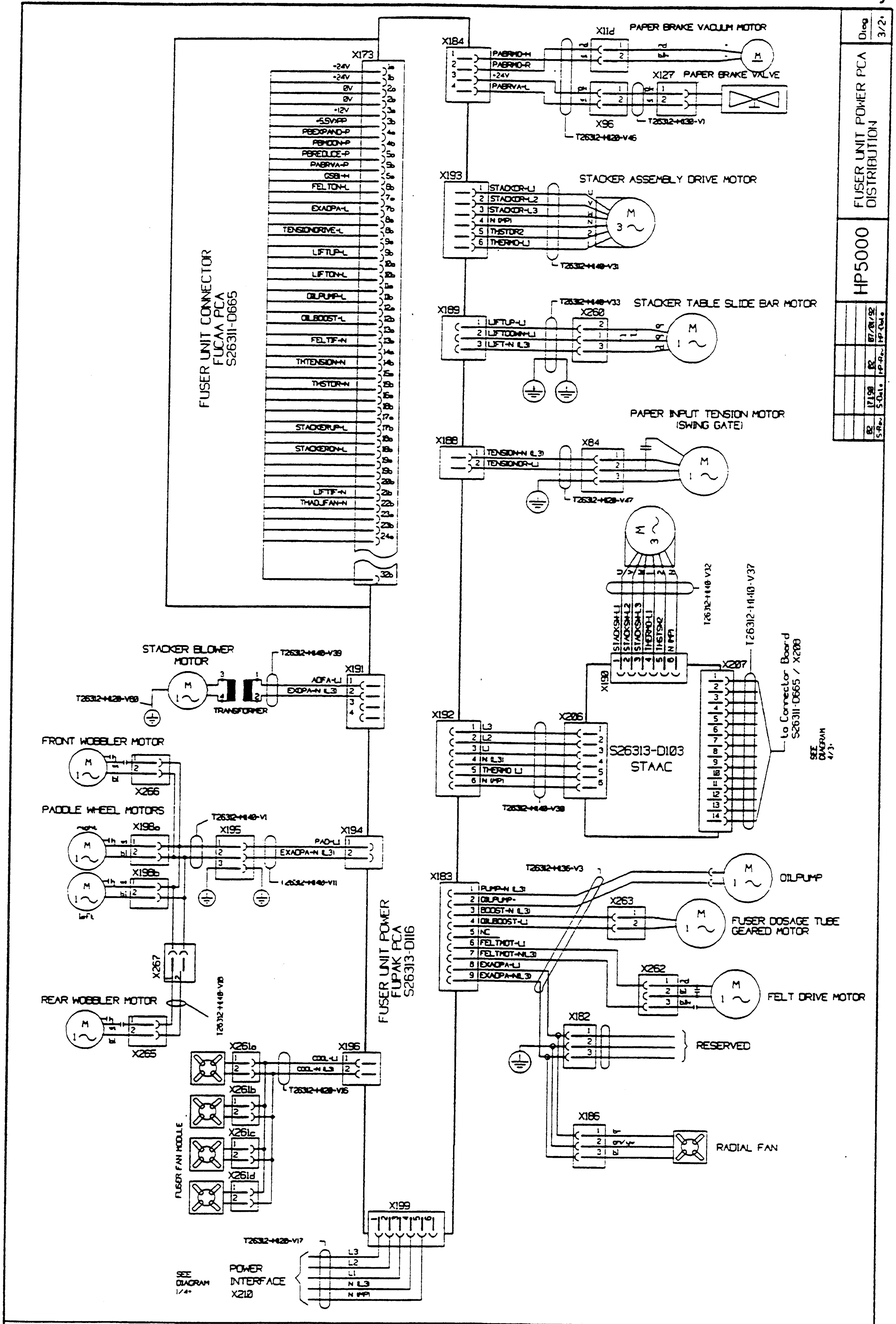

OPERATOR MAIN MODULE PCA
OMPAD
S26311-D621
T26311-H80-V77
SEE
DIAGRAM
2/5•
to
Controller
J2X272
X147
CEXMIT-P
CEXMIT-N
DEXMIT-P
DEXMIT-N
0V
0V
POMC-P
POMC-N
BOOT-P
BOOT-N
X148
1/6NCHCLK/P-H
1/6NCHCLK/P-L
PRCLK/P-H
PRCLK/P-L
STEPCLK/P-H
STEPCLK/P-L
TRRUN/N-H
TRRUN/N-L
SERDATA/P-H
SERDATA/P-L
MMEMSTOP/N-H
MMEMSTOP/N-L
DATAWREN/P-H
DATAWREN/P-L
FOMC/N-H
FOMC/N-L
NC
NC
EMPOFF1-H
EMPOFF2-H
EMPOFF3-H
EMPOFF4-H
EMSTOP1-H
EMSTOP2-H
EMSTOP3-H
EMSTOP4-H
T26312-H120-V57
SEE
DIAGRAM
1/9•2/1•4/3•2/6•
Bitbus
X152
TESTALE-P
TESTPSEN-N
0V
RXD-N
Code Pin
0V
Code Pin
TXD-N
+5V
NC
Not
Used
X144
0V
+5V
NC
X145
Code Pin
RESSV2-N
SVDIP-P (FTR D0)
T26312-H120-V
to SV2/X141
SEE
DIAGRAM
1/7•
X146
T26312-H120-V59
0V
ON-L
oENABLEB-N
oENABLEA-N
RESSV2-N
PHASEFAIL-P
ENABPWR-N
DEVPOWOFF-N
POWERON-N
ENABLEB-N
ENABLEA-N
POWON-P
ENABLE POWER
SWITCH
POWER ON
PUSH-BUTTON
to
PCI/X6
SEE
DIAGRAM
1/5•
X149
Code Pin
0V
+5V
to Front Panel Display
X151
T26312-H120-V75
CHIPINT-N
CHIPGND
CHIPVCC
CHIPRST-N
CHIPI/O-P
CHIPCLK-P
0V
to Multi-Function
Chip Card
OPTION
T26312-H120-V11
S8
Main Power OFF
X115-1
X115-2
SEE
DIAGRAM
1/5•
02
6.04.90
S-Rev
S-Date
02
12/06/92
HP-Rev
HP-Date
HP5000
OPERATOR PANEL -
MAIN MODULE
DISTRIBUTION
Diag
2/3•


Diag 2/4
FUSER UNIT POWER PCA DISTRIBUTION
HP5000
07/10/92
HP-Date
HP-Rev
27490
S-Date
02
S-Rev
FUSER UNIT CONNECTOR PCA FUCAA S26311-D665
FUSER UNIT POWER MODULE FUSAB
S26313-D109
X174
0V 1a
0V 1b
+5V 2a
+5V 2b
FRRUNRED-P 3a
FRSTANDRED-P 3b
FRRESET/N-L 4a
FRRESET/N-H 4b
FRHALF/P-H 5a
FRHALF/P-L 5b
FRCW/P-H 6a
FRCW/P-L 6b
FRCLOCK/P-L 7a
FRCLOCK/P-H 7b
S5V>PP 8a
OWBGS-H 8b
FR1SENSE-H 9a
FR2SENSE-H 9b
FP1SENSE-H 10a
FP2SENSE-H 10b
0V 11a
0V 11b
+5V 12a
+5V 12b
FPRUNRED-P 13a
FPSTANDRED-P 13b
FPRESET/N-L 14a
FPRESET/N-H 14b
FPHALP/P-H 15a
FPHALP/P-L 15b
FPCW/P-H 16a
FPCW/P-L 16b
FPCLOCK/P-L 17a
FPCLOCK/P-H 17b
FSRUNRED-P 18a
FSSTANDRED-P 18b
FSRESET/N-L 19a
FSRESET/N-H 19b
FSHALF/P-H 20a
FSHALF/P-L 20b
FSCW/P-H 21a
FSCW/P-L 21b
FSCLOCK/P-L 22a
FSCLOCK/P-H 22b
EXRUNRED-P 23a
EXSTANDRED-P 23b
EXRESET/N-L 24a
EXRESET/N-H 24b
EXHALF/P-H 25a
EXHALF/P-L 25b
EXCW/P-H 26a
EXCW/P-L 26b
EXCLOCK/P-L 27a
EXCLOCK/P-H 27b
EX1SENSE-H 28a
EX2SENSE-H 28b
FS1SENSE-H 29a
FS2SENSE-H 29b
0V 30a
0V 30b
0V 31a
0V 31b
0V 32a
0V 32b
FUSER ROLLER MOTOR
X241
1 rd PHASEFR2-R
2 ye PHASEFR2-H
3 blk PHASEFR1-R
4 or PHASEFR1-H
5 gr SHIELD
6
M
FUSER PRESSURE ROLLER SWIVEL MOTOR
X242
1 rd PHASEFP2-R
2 ye PHASEFP2-H
3 blk PHASEFP1-R
4 or PHASEFP1-H
5 gr SHIELD
6
M
FUSER SADDLE SWIVEL MOTOR
X243
1 rd PHASEFS2-R
2 ye PHASEFS2-H
3 blk PHASEFS1-R
4 or PHASEFS1-H
5 gr SHIELD
6
M
STACKER TENSION ROLLER MOTOR
X244
1 rd PHASEEX2-R
2 gn PHASEEX2-H
3 blk PHASEEX1-R
4 bl PHASEEX1-H
5 wt SHIELD
6
X197
1 rd
2 ye
3 blk
4 or
5 gr
M
T26312-H040-V12
X240
1 +40V
2 +40V
3 0V
4 0V
5 +42V
T26312-H020-V3
From SV3/X119
SEE DIAGRAM 1/8


SCSI INTERFACE
MCSAB PCA
26311-F325
0V
+5V
X361
3 2 1
T26311-H80-V72
to SV2 X238
SEE
DIAGRAM
1/7+
U98
SEE
DIAGRAM
2/6+
SEE
DIAGRAM
2/3+
SEE
DIAGRAM
1/16+
SCSI/LIP CONNECTOR
AECAB PCA
S26311-D738
T26311-H80-V77
to PCA D745 XL01/B1
to Operator Panel X147
T26311-H80-V79
Floppy Drive X168
T26311-H80-V76
POWER CONDUCTOR
T26311-H80-V74
1,2,4,5 = 0V
7-10 = +5V
to SV2
P1
J1
J10.X275
J2.X272
J7.X278
1
10
34
12
50
to Hard Disk (OPTION)
LIP CONTROLLER
LIPAC PCA
S26311-D672
J9.X173
T26311-H130-V78
to
TLAAB PCA
XL04/A1
HP5000
LIP CONTROLLER
Diag
2/5+
01
1898
S.Rev
S.Date
02
07/08/92
HP-Rev
HP-Date


Diag
2/6•
IMAGE GENERATOR PCA
REMOTE DIAGNOSTIC PCA
DISTRIBUTION
HP5000
REMOTE DIAGNOSTIC
RDLAC PCA
S26311-D745
XL1/B1
XL1/B2
XL1/B3
T26311-H80-V77
SEE DIAGRAM 2/5• J10.X275)
T26311-H80-V21
T26311-H80-V22
G
LOCAL PORT
REMOTE PORT
IMAGE GENERATOR PCA
ZGSAC
S26311-D736
(X105)
(X104)
(X103)
(X107)
(X101)
DATA BUS
SEE DIAGRAM 1/17• (X98)
T26311-H108-V32
DEVICE CONTROL BUS
SEE DIAGRAM 1/17• (X97)
T26311-H108-V31
ZG-SV
SEE DIAGRAM 1/16• (X88)
T26311-H80-V26
SEE DIAGRAM 1/17• (X110)
T26311-H108-V24
BIT-BUS
SEE DIAGRAM 2/3• (X148)
T26312-H120-V57


FUSER LAMP POWER
HP5000
Diag 3/1*
01 12.12.88 02 07.09.92
S-Rev. S-Date HP-Rev. HP-Date
50 Hz VERSION
60 Hz VERSION
from RECTIFIER FUPAB S26313-F17
X271B
X271
N
bl
T26312+H20-V33
SEE DIAGRAM 1/4*
FUSER LAMP CONTROL FUPAB
S26313-F17
X279
X281
X280
X273
X278
X272
X245
FRONT
BACK
220V DC VOLTAGE
T26312-H136-V8
T26312-H136-V1
T26312+H29-V33
G
bl
blk
br
N L3
L2
PC1
From X113/1/2
SEE DIAGRAM 1/5*
T26312+H20-V33
$ +5V
FOURALERT-H
GSSI-H
FOUREF-P
FTRANSDEF-P
FHOT-P
FHEATERDEF-P
RCURALERT-P
NC
RCUREF-P
RTRANFFF-P
HEATCOVOPEN-H
RHEATERDEF-P
FRONTHEATON-L
FRONTREDØ-L
FRONTRED1-L
REARHEATON-L
REARREDØ-L
REARRED1-L
$0V
K10-ON-L
$ -30V
SEE DIAGRAM 4/3*
Connector Board S26311-D665 / X247
T26312-H120-V76


Diag 3/24
FUSER UNIT POWER PCA DISTRIBUTION
HP5000
07/08/92 HP-Date
02 HP-Rev
17/98 S-Date
02 S-Rev
FUSER UNIT CONNECTOR
FUCAA PCA
S26311-D665
X173
+24V 1a
+24V 1b
0V 2a
0V 2b
+12V 3a
-5.5VXPP 3b
PBEXPAND-P 4a
PBMODN-P 4b
PBREDUCE-P 5a
PABRVA-P 5b
GSBI-H 6a
FELTON-L 6b
7a
EXADPA-L 7b
8a
TENSIONDRIVE-L 8b
9a
LIFTUP-L 9b
10a
LIFTON-L 10b
11a
OILPUMP-L 11b
12a
OILBOOST-L 12b
13a
FELTIF-N 13b
14a
THTENSION-N 14b
15a
THSTOR-N 15b
16a
16b
17a
STACKERUP-L 17b
18a
STACKERON-L 18b
19a
19b
20a
LIFTIF-N 21b
THADJFAN-N 22b
23a
23b
24a
32b
X184
1 PABRMO-H
2 PABRMO-R
3 +24V
4 PABRVA-L
X11d
PAPER BRAKE VACUUM MOTOR
rd
bk
M
X127 PAPER BRAKE VALVE
X96
T26312-H030-V1
T26312-H020-V46
X193
1 STACKDR-L1
2 STACKDR-L2
3 STACKDR-L3
4 N (MP)
5 THSTOR2
6 THERMO-L1
STACKER ASSEMBLY DRIVE MOTOR
U V W N 2
M 3 ~
T26312-H140-V31
X189
1 LIFTUP-L1
2 LIFTDOWN-L1
3 LIFT-N (L3)
T26312-H140-V33
X260
STACKER TABLE SLIDE BAR MOTOR
M 1 ~
PAPER INPUT TENSION MOTOR
(SWING GATE)
X188
1 TENSION-N (L3)
2 TENSIONDR-L1
X84
T26312-H020-V47
M 3 ~
U V W 1 2 N
T26312-H140-V32
T26312-H140-V37
X190
1 STACKSH-L1
2 STACKSH-L2
3 STACKSH-L3
4 THERMO-L1
5 THSTOR2
6 N (MP)
X207
To Connector Board
S26311-D665 / X208
SEE DIAGRAM 4/3.
X192
1 L3
2 L2
3 L1
4 N (L3)
5 THERMO L1
6 N (MP)
X206
S26313-D103
STAAC
T26312-H140-V38
STACKER BLOWER MOTOR
T26312-H140-V39
X191
1 ADFA-L1
2 EXDPA-N (L3)
TRANSFORMER
T26312-H120-V80
FRONT WOBBLER MOTOR
X266
PADDLE WHEEL MOTORS
right
X198a
X198b
left
T26312-H140-V1
X195
X194
1 PAD-L1
2 EXADPA-N (L3)
T26312-H140-V11
X267
REAR WOBBLER MOTOR
T26312-H140-V10
X265
FUSER UNIT POWER
FUPAK PCA
S26313-D116
X183
1 PUMP-N (L3)
2 OILPUMP-
3 BOOST-N (L3)
4 OILBOOST-L1
5 NC
6 FELTMOT-L1
7 FELTMOT-N(L3)
8 EXADPA-L1
9 EXADPA-N(L3)
T26312-H136-V3
OILPUMP
X263
FUSER DOSAGE TUBE GEARED MOTOR
X262
FELT DRIVE MOTOR
X182
RESERVED
X186
RADIAL FAN
X261a
X261b
X261c
X261d
FUSER FAN MODULE
X196
1 COOL-L1
2 COOL-N (L3)
T26312-H020-V16
X199
T26312-H020-V17
SEE DIAGRAM 1/4.
POWER INTERFACE
X210
L3
L2
L1
N (L3)
N (MP)

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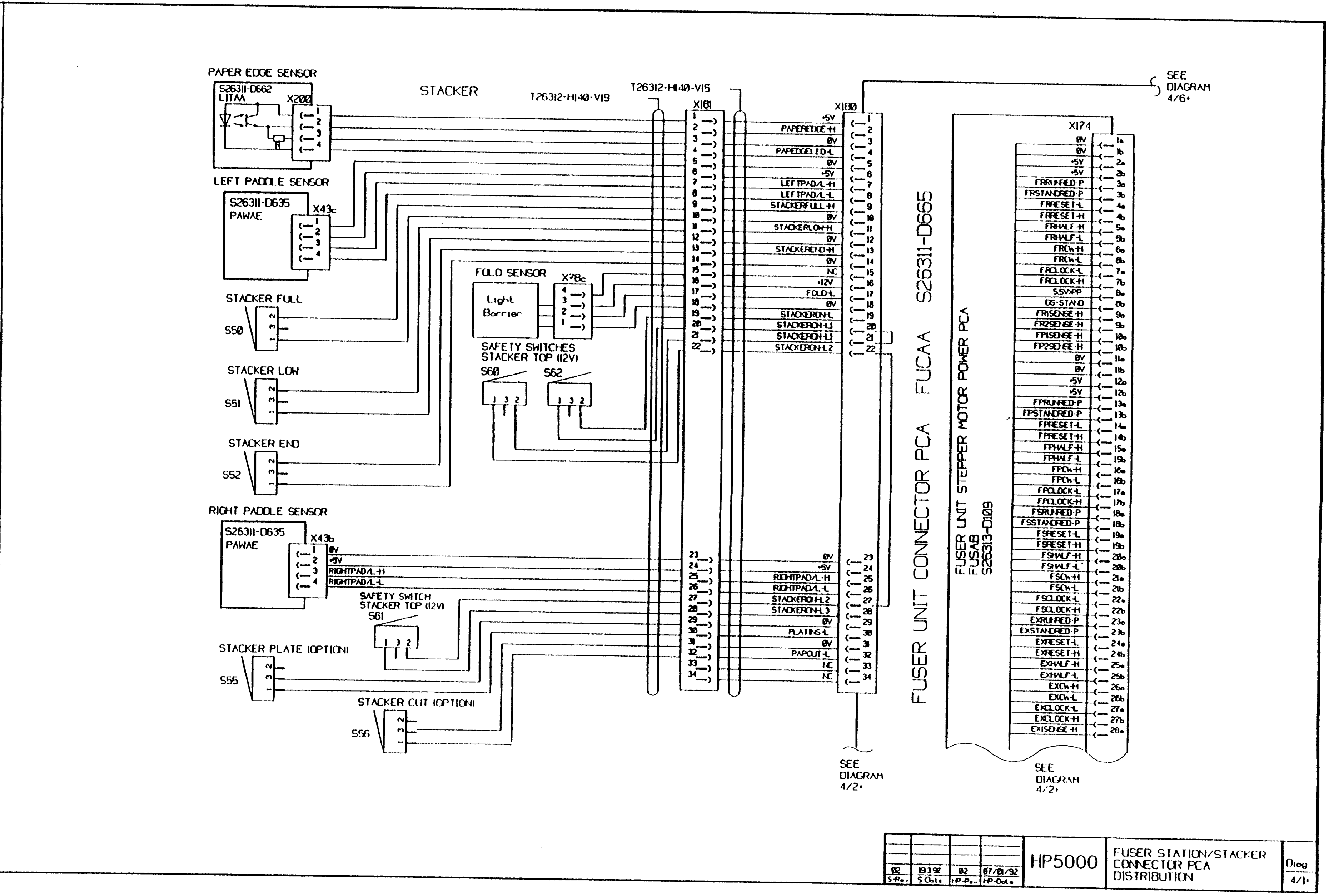
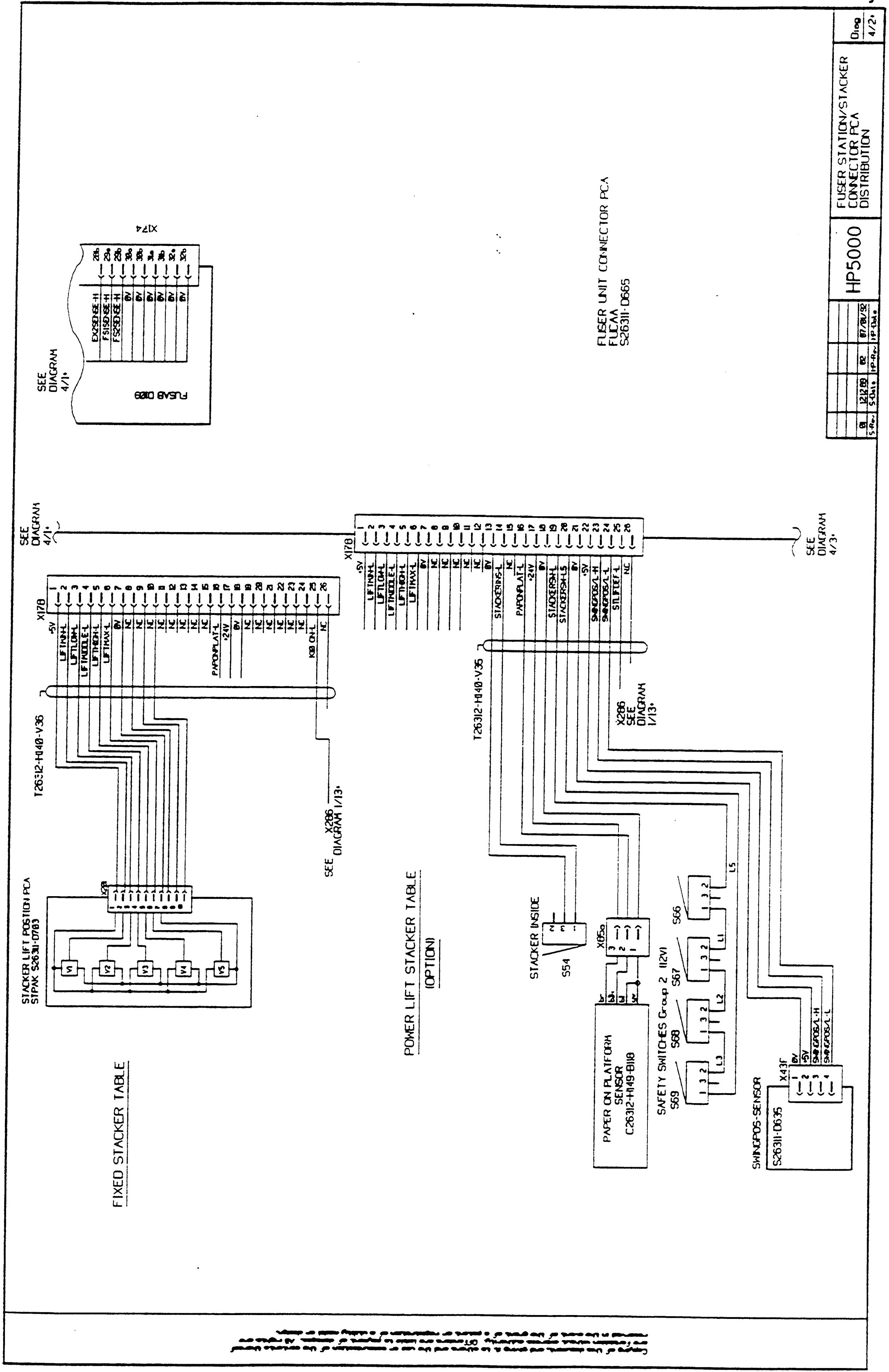
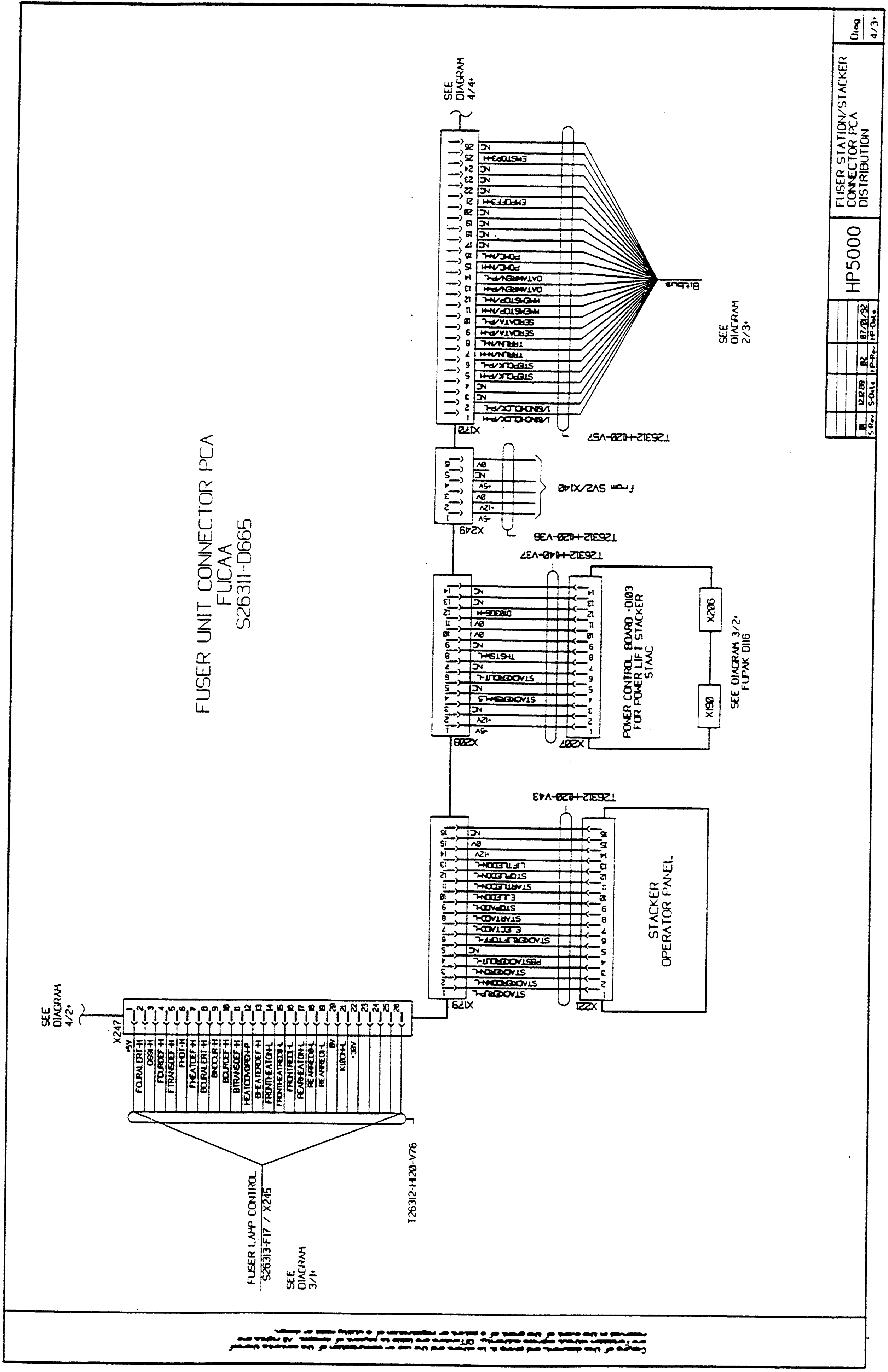
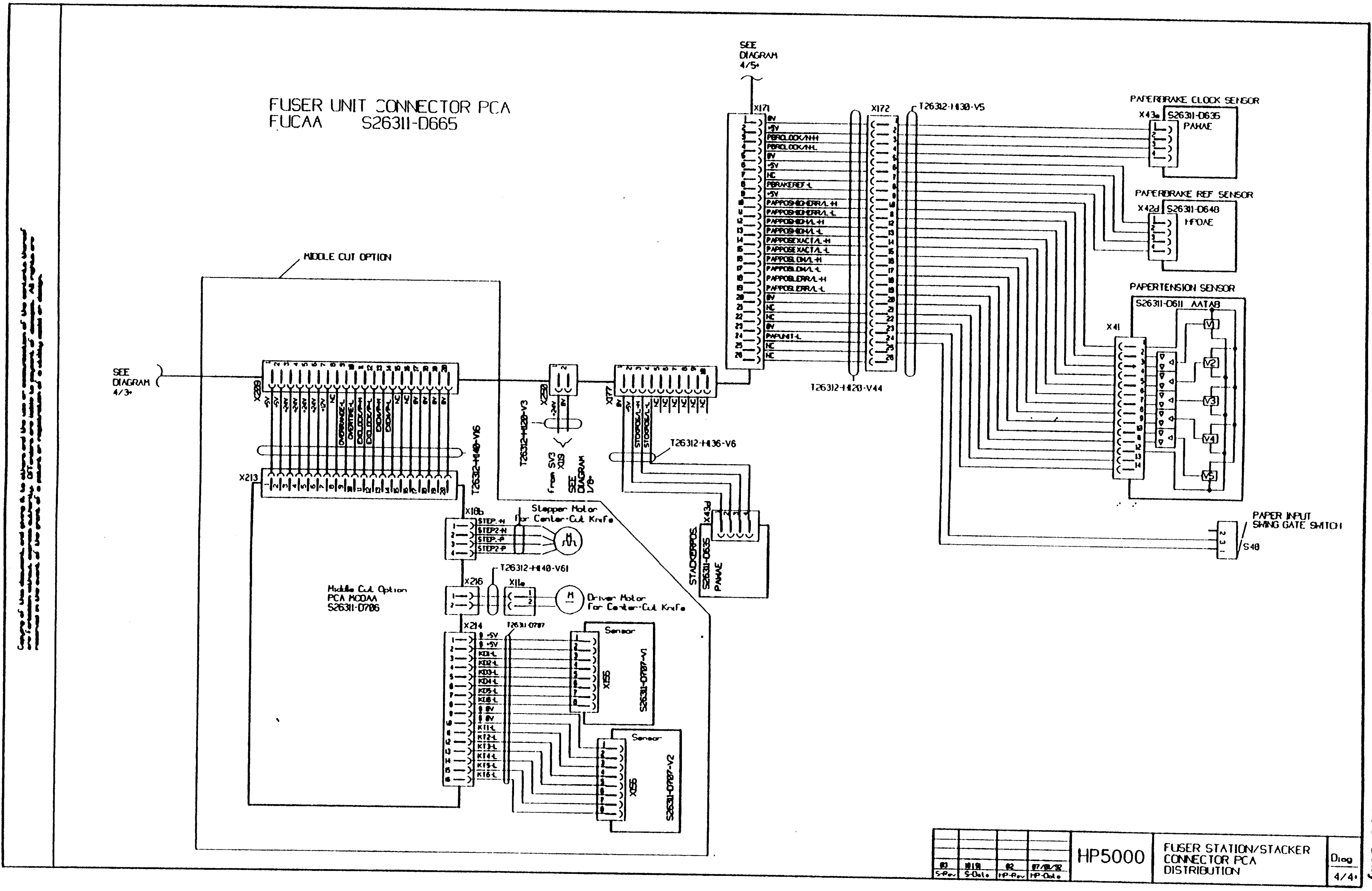
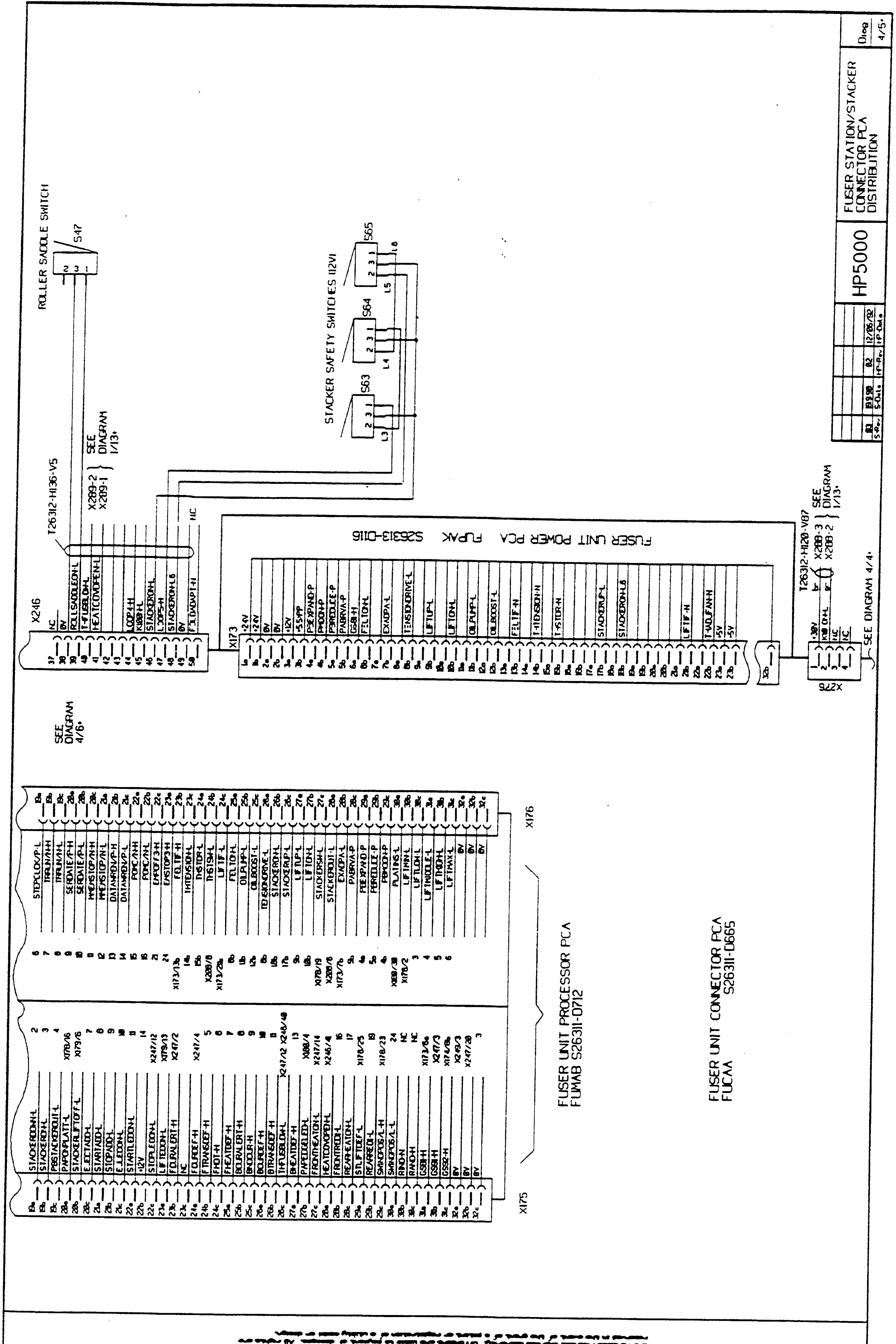
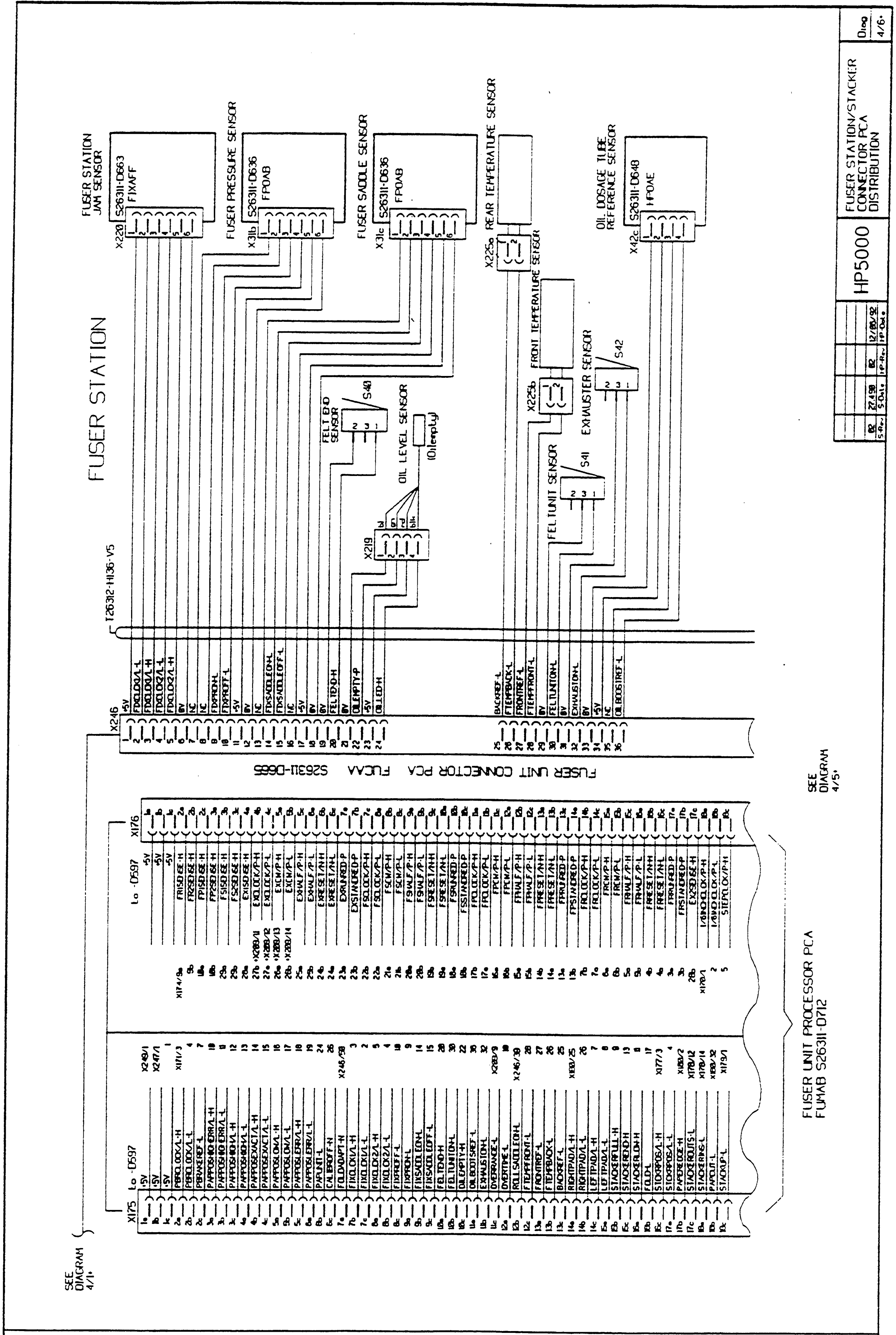

PAPER EDGE SENSOR
S26311-D662
LITAA
X200
LEFT PADDLE SENSOR
S26311-D635
PAWAE
X43c
STACKER FULL
S50
STACKER LOW
S51
STACKER END
S52
RIGHT PADDLE SENSOR
S26311-D635
PAWAE
X43b
0V
+5V
RIGHTPADAL-H
RIGHTPADAL-L
STACKER PLATE (OPTION)
S55
STACKER CUT (OPTION)
S56
STACKER
T26312-H140-V19
T26312-H140-V15
X181
FOLD SENSOR
Light Barrier
X78c
SAFETY SWITCHES
STACKER TOP (12V)
S60
S62
SAFETY SWITCH
STACKER TOP (12V)
S61
X180
+5V
PAPEREDGE-H
0V
PAPEDGELED-L
0V
+5V
LEFTPADAL-H
LEFTPADAL-L
STACKERFULL-H
0V
STACKERLOW-H
0V
STACKEREND-H
0V
NC
+12V
FOLD-L
0V
STACKERON-L
STACKERON-L1
STACKERON-L1
STACKERON-L2
0V
+5V
RIGHTPADAL-H
RIGHTPADAL-L
STACKERON-L2
STACKERON-L3
0V
PLATINS-L
0V
PAPOUT-L
NC
NC
SEE DIAGRAM 4/6•
SEE DIAGRAM 4/2•
FUSER UNIT CONNECTOR PCA FUCAA S26311-D665
FUSER UNIT STEPPER MOTOR POWER PCA
FUSAB
S26313-D109
X174
0V
0V
+5V
+5V
FRRUNRED-P
FRSTANDRED-P
FRRESET-L
FRRESET-H
FRHALF-H
FRHALF-L
FRCW-H
FRCW-L
FRCLOCK-L
FRCLOCK-H
5.5VPP
OS-STAND
FR1SENSE-H
FR2SENSE-H
FP1SENSE-H
FP2SENSE-H
0V
0V
+5V
+5V
FPRUNRED-P
FPSTANDRED-P
FPRESET-L
FPRESET-H
FPHALF-H
FPHALF-L
FPCW-H
FPCW-L
FPCLOCK-L
FPCLOCK-H
FSRUNRED-P
FSSTANDRED-P
FSRESET-L
FSRESET-H
FSHALF-H
FSHALF-L
FSCW-H
FSCW-L
FSCLOCK-L
FSCLOCK-H
EXRUNRED-P
EXSTANDRED-P
EXRESET-L
EXRESET-H
EXHALF-H
EXHALF-L
EXCW-H
EXCW-L
EXCLOCK-L
EXCLOCK-H
EXISENSE-H
SEE DIAGRAM 4/2•
02 S-Rev
19.3.92 S-Date
02 HP-Rev
07/01/92 HP-Date
HP5000
FUSER STATION/STACKER CONNECTOR PCA DISTRIBUTION
Diag 4/1•

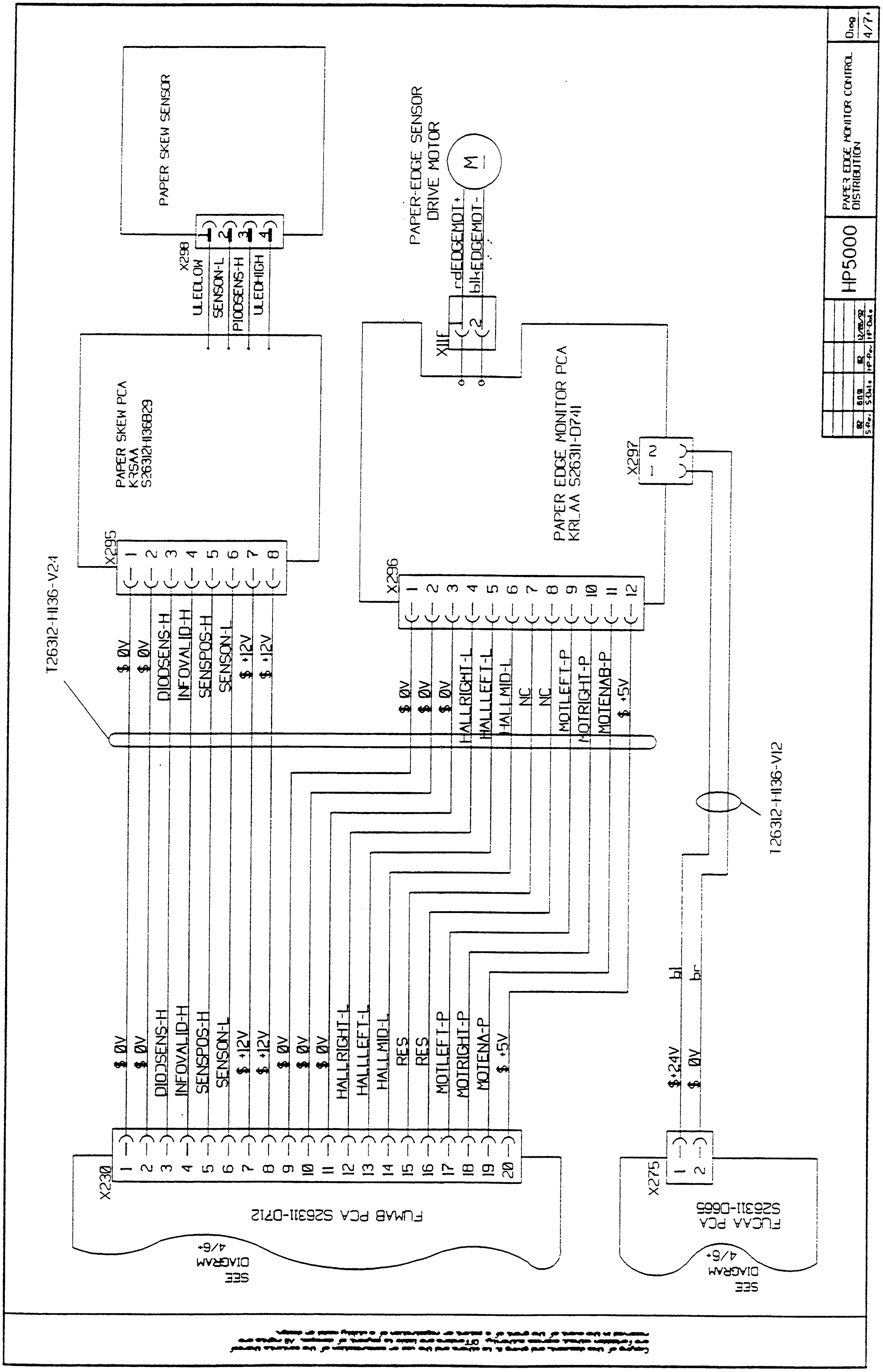

FUSER STATION/STACKER CONNECTOR PCA DISTRIBUTION
HP5000
Diag 4/2*
S-Rev 01 S-Date 12.12.89 HP-Rev 02 HP-Date 07/08/92
FUSER UNIT CONNECTOR PCA FUCAA S26311-D665
SEE DIAGRAM 4/1*
FUSAB D109
X174
EX2SENSE-H
FS1SENSE-H
FS2SENSE-H
0V
X178
+5V
LIFTMIN-L
LIFTLOW-L
LIFTMIDDLE-L
LIFTHIGH-L
LIFTMAX-L
NC
PAPONPLAT-L
+24V
K18 ON-L
STACKERINS-L
STACKERSH-L
STACKERSH-LS
SWINGPOS/L-H
SWINGPOS/L-L
STLIFDEF-L
T26312-H140-V36
SEE DIAGRAM 4/3*
SEE X286 DIAGRAM 1/13*
STACKER LIFT POSITION PCA STPAK S26311-D703
X28
V1
V2
V3
V4
V5
FIXED STACKER TABLE
POWER LIFT STACKER TABLE (OPTION)
STACKER INSIDE
S54
X05a
PAPER ON PLATFORM SENSOR C26312-H149-B118
SAFETY SWITCHES Group 2 (12V)
S69
S68
S67
S66
L1
L2
L3
L5
SWINGPOS-SENSOR S26311-D635
X431


FUSER UNIT CONNECTOR PCA
FUCAA
S26311-D665
FUSER STATION/STACKER CONNECTOR PCA DISTRIBUTION
HP5000
Diag 4/3•
SEE DIAGRAM 4/4•
SEE DIAGRAM 2/3•
SEE DIAGRAM 4/2•
SEE DIAGRAM 3/1•
SEE DIAGRAM 3/2• FUPAK D116
X170
X249
X208
X207
X179
X221
X247
X206
X190
T26312-H020-V57
T26312-H020-V38
T26312-H040-V37
T26312-H020-V43
T26312-H120-V76
8 bits
from SV2/X140
POWER CONTROL BOARD -D103 FOR POWER LIFT STACKER STAAC
STACKER OPERATOR PANEL
FUSER LAMP CONTROL
S26313-F17 / X245
EMSTOP3-H
EMOFF3-H
POWC/N-H
POWC/P-H
DATAVMEN/P-L
DATAVMEN/P-H
MMEMSTOP/N-L
MMEMSTOP/N-H
SERDATA/P-L
SERDATA/P-H
TRRUN/N-L
TRRUN/N-H
STEPCLK/P-L
STEPCLK/P-H
VSYNCHCLK/P-L
VSYNCHCLK/P-H
NC
0V
+5V
+12V
D103OE-H
THSTSH-L
STACKERRDUT-L
STACKERSTSH-L
LIFTLEDON-L
STOPLEDON-L
STARTLEDON-L
EJLEDON-L
STOPKOD-L
STARTKOD-L
EJECTKOD-L
STACKERLIFTOFF-L
PRESTACKERRDUT-L
STACKERRON-L
STACKERDOWN-L
STACKERUP-L
FCURALERT-H
OSSW-H
FCUROEF-H
FTRANSOEF-H
FHOT-H
FHEATOEF-H
BCURALERT-H
BHCCUR-H
BCUROEF-H
BTRANSOEF-H
HEATCOVOPEN-P
BHEATEROEF-H
FRONTHEATON-L
FRONTHEATREDB-L
FRONTREDB-L
REARHEATON-L
REARREDB-L
K100H-L
+30V


FUSER UNIT CONNECTOR PCA
FUCAA S26311-D665
SEE DIAGRAM 4/5+
X171
0V
+5V
PBRCLOCK/H-H
PBRCLOCK/H-L
0V
+5V
NC
PBRAKEREF-L
+5V
PAPPOSHIGHERR/L-H
PAPPOSHIGHERR/L-L
PAPPOSHIGH/L-H
PAPPOSHIGH/L-L
PAPPOSEXACT/L-H
PAPPOSEXACT/L-L
PAPPOSLOW/L-H
PAPPOSLOW/L-L
PAPPOSLERR/L-H
PAPPOSLERR/L-L
0V
NC
NC
0V
PAPUNIT-L
NC
NC
X172
T26312-H130-V5
T26312-H120-V44
PAPERBRAKE CLOCK SENSOR
X43a
S26311-D635
PAHAE
PAPERBRAKE REF SENSOR
X42d
S26311-D640
HPOAE
PAPERTENSION SENSOR
S26311-D611 AATAB
X41
V1
V2
V3
V4
V5
PAPER INPUT SWING GATE SWITCH
S48
MIDDLE CUT OPTION
SEE DIAGRAM 4/3+
X209
+5V
+5V
+24V
+24V
+24V
+24V
+12V
NC
OVERRANGE-L
OVERTIME-L
EXCLOCK/P-H
EXCLOCK/P-L
EXDVA/P-H
EXDVA/P-L
NC
NC
0V
0V
0V
0V
T26312-H140-V16
X213
X250
+24V
0V
T26312-H120-V3
from SV3 X19
SEE DIAGRAM 1/8+
X177
0V
+5V
STOOPOS/L-H
STOOPOS/L-L
NC
T26312-H136-V6
X43d
STACKERPOS
S26311-D635
PAHAE
X18b
STEP.-N
STEP2-N
STEP.-P
STEP2-P
Stepper Motor for Center-Cut Knife
M
X216
T26312-H140-V61
X11e
Driver Motor for Center-Cut Knife
Middle Cut Option
PCA MCOAA
S26311-D706
X214
+5V
+5V
KD1-L
KD2-L
KD3-L
KD4-L
KD5-L
KD6-L
0V
0V
K11-L
K12-L
K13-L
K14-L
K15-L
K16-L
T26311-D787
Sensor
X155
S26311-D787-V1
Sensor
X156
S26311-D787-V2
S-Rev 00
S-Date 10191
HP-Rev 02
HP-Date 07/10/92
HP5000
FUSER STATION/STACKER CONNECTOR PCA DISTRIBUTION
Diag 4/4+


FUSER STATION/STACKER CONNECTOR PCA DISTRIBUTION
HP5000
Diag 4/5*
ROLLER SADDLE SWITCH
S47
STACKER SAFETY SWITCHES (12V)
S63
S64
S65
L3
L4
L5
L6
T26312-H136-V5
X289-2
X289-1
SEE DIAGRAM 1/13*
X246
X173
FUSER UNIT POWER PCA FUPAK S26313-D116
T26312-H120-V87
X288-3
X288-2
SEE DIAGRAM 1/13*
SEE DIAGRAM 4/4*
X276
SEE DIAGRAM 4/6*
X176
X175
FUSER UNIT PROCESSOR PCA FUMAB S26311-D712
FUSER UNIT CONNECTOR PCA FUCAA S26311-D665


FUSER STATION
FUSER STATION JAM SENSOR
X220
S26311-D663
FIXAFF
FUSER PRESSURE SENSOR
X31b
S26311-D636
FPOAB
FUSER SADDLE SENSOR
X31c
S26311-D636
FPOAB
REAR TEMPERATURE SENSOR
X225a
FRONT TEMPERATURE SENSOR
X225b
OIL DOSAGE TUBE REFERENCE SENSOR
X42c
S26311-D648
FPOAE
FELT END SENSOR
S40
OIL LEVEL SENSOR
(Oilempty)
X219
FELT UNIT SENSOR
S41
EXHAUSTER SENSOR
S42
T26312-H136-V5
X246
+5V
FDXCLOCK1/L-L
FDXCLOCK1/L-H
FDXCLOCK2/L-L
FDXCLOCK2/L-H
0V
NC
FDXPRON-L
FIXPROFF-L
FDXSADDLEON-L
FDXSADDLEOFF-L
FELTEND-H
OILEMPTY-P
OILLED-H
BACKREF-L
FTEMPBACK-L
FRONTREF-L
FTEMPFRONT-L
FELTUNITON-L
EXHAUSTON-L
OILBOOSTREF-L
FUSER UNIT CONNECTOR PCA FUCAA S26311-D665
SEE DIAGRAM 4/5
X176
X175
Lo -D597
FUSER UNIT PROCESSOR PCA
FUMAB S26311-D712
SEE DIAGRAM 4/1
FUSER STATION/STACKER CONNECTOR PCA DISTRIBUTION
HP5000
Diag 4/6


PAPER SKEW SENSOR
X298
ULEDLOW
SENSON-L
PIODSENS-H
ULEDHIGH
PAPER SKEW PCA
KRSAA
S26312-H136B29
X295
PAPER-EDGE SENSOR
DRIVE MOTOR
M
rdEDGEMOT+
blkEDGEMOT-
X11E
PAPER EDGE MONITOR PCA
KRLAA S26311-D741
X297
X296
T26312-H136-V24
$ 0V
$ 0V
DIODSENS-H
INFOVALID-H
SENSPOS-H
SENSON-L
$ +12V
$ +12V
$ 0V
$ 0V
$ 0V
HALLRIGHT-L
HALLLEFT-L
HALLMID-L
NC
NC
MOTLEFT-P
MOTRIGHT-P
MOTENAB-P
$ +5V
T26312-H136-V12
RES
RES
MOTENA-P
bl
br
$ +24V
$ 0V
X230
FUMAB PCA S26311-D712
SEE DIAGRAM 4/6+
X275
FUCAA PCA S26311-D665
SEE DIAGRAM 4/6+
HP5000
PAPER EDGE MONITOR CONTROL DISTRIBUTION
Diag 4/7+

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Code Number Cross Reference

Code Number	Description	Diagram Number
B029	Paper Skew Sensor	4/7
B029	Paper Skew Sensor	4/7
B489	TREK Probe PCA	1/10
D093	Paper Path Power PCA	2/2
D103	Power Lift Stacker Power PCA	3/2, 4/3
D109	Fuser Unit Power PCA	2/4, 4/1, 4/2
D110	Basic Unit 24V Power PCA	1/12
D116	Fuser Unit Power PCA	3/2, 4/5
D121	Basic Unit Power PCA	1/6, 1/11
D606	Vacuum Pressure Sensor PCA	1/11
D611	Paper Tension Sensor PCA	4/4
D617	Paper Transport Connector PCA	2/1, 2/2
D621	Operator Main Module PCA	2/3
D635	Paddle Sensor PCA	4/1
D635	Paper Brake-Clock Sensor PCA	4/4
D635	Swing Position Sensor PCA	4/2
D635	Paper Width Sensor PCA	2/2
D635	Stack Position Sensor PCA	4/4
D636	Transaddle Sensor PCA	2/2
D636	Fixpress Sensor PCA	4/6
D636	Fixsaddle Sensor PCA	4/6
D637	Paper Motion Clock Sensor PCA	2/2
D638	Charge & Discharge Corotron In/Out Sensor PCA	1/9
D640	Toner Mark Sensor PCA	1/10
D648	Paper Brake Reference PCA	4/4
D648	Oil Dosage Tube Reference PCA	4/6
D648	Transfer Corotron In/Out Sensor PCA	2/2
D662	Paper Edge Sensor PCA	4/1
D663	Fix-Jam Sensor PCA	4/6
D665	Fuser Unit Connector PCA	2/4, 3/2, 4/1-4/7
D672	Line Image Processor PCA	2/5
D703	Stacker Lift Position Sensor PCA	4/2
D706	Middle-Cut PCA (Option)	4/4
D709	Post Processing PCA	1/12
D710	Paper Transport Processor PCA	
D711	Basic Unit Processor PCA	1/9, 1/10
D712	Fuser Unit Processor PCA	4/5, 4/6, 4/7
D735	Translator Processor PCA	
D736	Image Generator PCA	2/6
D738	SCSI/LIP Connector PCA	2/5
D741	Paper Edge Monitoring PCA	4/7
D743	Basic Unit Connector PCA	1/9-1/12
D745	Remote Diagnostic PCA	2/6
E025	High Voltage Power Supply	1/8
E035	LED Araay 3V Power Supply	1/16
E037	Special Voltages +24V, +40V Power Supply	1/8
E041	Controller +/-5V, +/-12V Power Supply	1/7
E165	Motherboard PCA	1/7
F017	Heater Power PCA	1/4, 3/1

Code Number	Description	Diagram Number
F018	Power Control Interface PCA	1/5
F325	SCSI Interface PCA	2/5
F329	Developer Bias PCA	

PCA Cross Reference

PCA	Description	Diagram Number
AATAB	Paper Tension Sensor PCA	4/4
AECAB	SCSI/LIP Connector PCA	2/5
BIAAA	Developer Bias PCA	
BUCAC	Basic Unit Connector PCA	1/9-1/12
BUMAC	Basic Unit Processor PCA	1/9, 1/10
BUPAB	Basic Unit Power PCA	1/6, 1/11
FIXAF	Fix-Jam Sensor PCA	4/6
FPOAB	Fixpress Sensor PCA	4/6
FPOAB	Transaddle Sensor PCA	2/2
FPOAB	Fixsaddle Sensor PCA	4/6
FUCAA	Fuser Unit Connector PCA	2/4, 3/2, 4/1-4/7
FUMAB	Fuser Unit Processor PCA	4/5, 4/6, 4/7
FUPAB	Heater Power PCA	1/4, 3/1
FUPAK	Fuser Unit Power PCA	3/2, 4/5
FUSAB	Fuser Unit Power PCA	2/4, 4/1, 4/2
HPOAD	Charge & Discharge Corotron In/Out Sensor PCA	1/9
HPOAE	Oil Dosage Tube Reference PCA	4/6
HPOAE	Transfer Corotron In/Out Sensor PCA	2/2
HPOAE	Paper Brake Reference PCA	4/4
ICAAF	Post Processing PCA	1/12
KRLAA	Paper Edge Monitoring PCA	4/7
KRSAA	Paper Skew Sensor	4/7
LIPAC	Line Image Processor PCA	2/5
LITAA	Paper Edge Sensor PCA	4/1
MCLAB	Paper Motion Clock Sensor PCA	2/2
MCOAA	Middle-Cut PCA (Option)	4/4
MCSAB	SCSI Interface PCA	2/5
OMPAD	Operator Main Module PCA	2/3
PAWAE	Paper Brake-Clock Sensor PCA	4/4
PAWAE	Paddle Sensor PCA	4/1
PAWAE	Stack Position Sensor PCA	4/4
PAWAE	Swing Position Sensor PCA	4/2
PAWAE	Paper Width Sensor PCA	2/2
PCIAI	Power Control Interface PCA	1/5
PDAAC	Paper Path Power PCA	2/2
PDMAB	Paper Transport Processor PCA	
PDWAA	Paper Transport Connector PCA	2/1, 2/2
PREAB	Vacuum Pressure Sensor PCA	1/11
RDLAC	Remote Diagnostic PCA	2/6
SM4	Motherboard PCA	1/7
STAAC	Power Lift Stacker Power PCA	3/2, 4/3
STPAK	Stacker Lift Position Sensor PCA	4/2
SV1	LED Araay 3V Power Supply	1/16
SV2	Controller +/-5V, +/-12V Power Supply	1/7
SV3	Special Voltages +24V, +40V Power Supply	1/8
SV4	High Voltage Power Supply	1/8
TLAAB	Translator Processor PCA	
TMSAD	Toner Mark Sensor PCA	1/10
TREK	TREK Probe PCA	1/10

PCA	Description	Diagram Number
VAGAA	Basic Unit 24V Power PCA	1/12
ZGSAC	Image Generator PCA	2/6

Switch Cross Reference

Switch	Diagram Number
S06	1/5
S08	2/3
S10	2/2
S20	1/11
S21	1/9
S22	1/9
S24	1/3
S25	1/10
S27	1/11
S29	1/9
S40	4/6
S41	4/6
S42	4/6
S44	1/3
S46	1/13
S47	4/5
S48	4/4
S49	2/2
S50	4/1
S51	4/1
S52	4/1
S54	4/2
S55	4/1
S56	4/1
S60	4/1
S61	4/1
S62	4/1
S63	4/5
S64	4/5
S65	4/5
S66	4/2
S67	4/2
S68	4/2
S69	4/2
S70	1/3
S71	1/3
S72	1/3
S73	1/3

Connector Cross Reference

Connector	Diagram Number
X001	1/5
X002	1/5
X003	1/5
X004	1/5
X005	1/5
X006	1/5
X009	1/5
X010	2/1
X011A	1/9
X011B	1/9
X011C	2/1
X011D	3/2
X011E	4/4
X011F	4/7
X012	1/10
X013	1/12
X014	2/1
X015	1/10
X016	2/1
X017	2/2
X018	2/1
X018B	4/4
X020	1/6
X021	1/6
X023	1/13
X024	1/6
X025	1/6
X026	1/6
X028	1/6
X030	1/6
X031A	2/2
X031B	4/6
X031C	4/6
X032A	1/9
X032B	1/9
X032C	1/9
X032D	1/9
X033	1/6
X033	1/8

Connector	Diagram Number
X034	1/6
X036	1/10
X037	1/6
X037	1/8
X038	1/6
X039A	1/9
X040	2/2
X041	4/4
X042A	2/2
X042B	2/2
X042C	4/6
X042D	4/4
X043A	2/2
X043B	4/1
X043C	4/1
X043D	4/4
X043E	4/4
X043F	4/2
X045	2/1
X046	1/6
X047	2/2
X048	2/2
X050	1/6
X052	2/2
X053	2/1
X054	1/6
X055	1/11
X056	1/9
X056	1/11
X057	1/10
X059	1/12
X060	1/12
X064	1/10
X065	1/9
X066	1/11
X067	1/10
X068	1/12
X069	1/9
X070	1/11

Connector	Diagram Number
X070	1/6
X071	1/12
X072	1/10
X072	1/10
X073	1/9
X076	1/11
X077	1/11
X078	2/2
X078A	1/11
X078B	1/11
X078C	4/1
X079	1/6
X080	1/10
X081	1/10
X082	1/12
X083	1/11
X084	3/2
X085	1/10
X085A	4/2
X086	1/10
X087	1/12
X088	1/16
X089	1/16
X090	1/17
X090	1/16
X092	1/17
X092	1/16
X096	3/2
X097	1/17
X098	1/17
X099	1/17
X101	2/6
X103	2/6
X104	2/6
X105	2/6
X107	2/6
X110	1/17
X112	1/5
X113	1/5

Connector	Diagram Number
X115	1/5
X116	1/8
X117	4/4
X117	1/8
X118	1/8
X119	1/8
X121	1/8
X122	1/8
X127	3/2
X129	1/8
X131	1/8
X132	1/8
X133	1/8
X134	1/8
X137	1/8
X138	1/7
X139	1/7
X140	1/7
X141	1/7
X142	1/7
X144	2/3
X145	2/3
X146	2/3
X147	2/3
X148	2/3
X149	2/3
X151	2/3
X152	2/3
X155	4/4
X156	4/4
X160	1/12
X168	1/16
X169	1/16
X170	4/3
X171	4/4
X172	4/4
X173	3/2
X173	2/5
X173	4/5
X174	2/4
X174	4/2
X174	4/1
X175	4/6
X175	4/5
X176	4/5
X176	4/6
X178	4/2
X179	4/3
X180	4/1
X181	4/1
X182	3/2
X183	3/2
X184	3/2
X185	1/4
X186	3/2
X188	3/2
X189	3/2
X190	4/3
X190	3/2
X191	3/2
X192	3/2
X193	3/2
X194	3/2
X195	3/2
X196	3/2
X197	2/4
X198A	3/2
X198B	3/2
X199	3/2
X200	4/1
X201	4/2
X202	1/4
X203	1/4
X206	3/2
X206	4/3
X207	4/3
X207	3/2
X208	4/3
X209	4/4
X210	1/4
X213	4/4
X214	4/4
X216	4/4
X219	4/6
X220	4/6
X221	4/3
X225A	4/6
X225B	4/6
X226A	1/13
X226B	1/13
X228	1/7
X229	1/7
X230	4/7
X234	1/7
X238	1/7
X240	2/4
X241	2/4
X242	2/4
X243	2/4
X244	2/4
X245	3/1
X246	4/5
X246	4/6
X247	4/3
X249	4/3
X250	4/4
X260	3/2
X261A	3/2
X261B	3/2
X261C	3/2
X261D	3/2
X261F	1/6
X262	3/2
X263	3/2
X265	3/2
X266	3/2
X267	3/2
X271	3/1
X271B	1/4
X271B	3/1
X272	2/5
X272	3/1
X273	3/1

Connector	Diagram Number
X273	2/5
X275	4/7
X275	2/5
X276	4/5
X278	1/4
X278	3/1
X278	2/5
X279	3/1
X280	3/1
X281	3/1
X282	1/13

Connector	Diagram Number
X283	1/13
X284	1/13
X285	1/13
X286	1/13
X287	1/11
X288	1/5
X288	1/13
X289	1/13
X294	1/12
X295	4/7
X296	4/7

Connector	Diagram Number
X297	4/7
X298	4/7
X361	2/5
X370	1/12
X372	1/12
X373	1/12
X396	1/9
XL1/B1	2/6
XL1/B2	2/6
XL1/B3	2/6